

(Adopted October 9, 1998)(Amended May 2, 2003)  
(Amended December 5, 2008)(Amended November 2, 2018)

**RULE 1469.   HEXAVALENT CHROMIUM EMISSIONS FROM CHROMIUM  
ELECTROPLATING AND CHROMIC ACID ANODIZING  
OPERATIONS**

(a)   Purpose

The purpose of this rule is to reduce hexavalent chromium emissions from facilities that perform chromium electroplating or chromic acid anodizing operations and other activities that are generally associated with chromium electroplating and chromic acid anodizing operations.

(b)   Applicability

This rule shall apply to the owner or operator of any facility performing chromium electroplating or chromic acid anodizing.

(c)   Definitions

For the purposes of this rule, the following definitions shall apply:

- (c)   (1)   ADD-ON AIR POLLUTION CONTROL DEVICE means equipment installed in the ventilation system of any Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s) for the purposes of collecting and containing chromium emissions from the tank(s).
- (c)   (2)   ADD-ON NON-VENTILATED AIR POLLUTION CONTROL DEVICE means equipment installed on any Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s) for the purposes of collecting, containing, or eliminating chromium emissions that is hermetically sealed and does not utilize a ventilation system.
- (c)   (3)   AIR POLLUTION CONTROL TECHNIQUE means any method, such as an add-on air pollution control device, add-on non-ventilated air pollution control device, mechanical fume suppressant or a chemical fume suppressant, that is used to reduce chromium emissions from one or more Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s).
- (c)   (4)   AMPERE-HOURS means the integral of electrical current applied to an electroplating tank (amperes) over a period of time (hours).
- (c)   (5)   ANNUAL PERMITTED AMPERE-HOURS means the maximum allowable chromium electroplating or anodizing rectifier production in

- ampere-hours, on an annual basis as specified in the SCAQMD Permit to Operate, or SCAQMD Permit to Construct.
- (c) (6) APPROVED CLEANING METHOD means cleaning using a wet mop, damp cloth, wet wash, low pressure spray nozzle, HEPA vacuum, or other method as approved by the Executive Officer.
  - (c) (7) ASSOCIATED PROCESS TANK means any tank in the process line of a Tier I, Tier II, or Tier III Hexavalent Chromium Tank.
  - (c) (8) BASE MATERIAL means the metal, metal alloy, or plastic that comprises the workpiece.
  - (c) (9) BARRIER means a physical divider that can be fixed or portable such as a wall, welding screen, plastic strip curtains, etc.
  - (c) (10) BATH COMPONENT means the trade or brand name of each component in trivalent chromium electroplating baths, including the chemical name of the wetting agent contained in that component.
  - (c) (11) BUILDING ENCLOSURE means a permanent building or physical structure, or portion of a building, enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, run-off), with limited openings to allow access for people, vehicles, equipment, or parts. A room within a building enclosure that is completely enclosed with a floor, walls, and a roof would also meet this definition.
  - (c) (12) CHEMICAL FUME SUPPRESSANT means any chemical agent that reduces or suppresses fumes or mists at the surface of an electroplating or anodizing bath; another term for fume suppressant is mist suppressant.
  - (c) (13) CHROMIC ACID means the common name for chromium anhydride ( $\text{CrO}_3$ ).
  - (c) (14) CHROMIC ACID ANODIZING means the electrolytic process by which an oxide layer is produced on the surface of a base material for functional purposes (e.g., corrosion resistance or electrical insulation) using a chromic acid solution. In chromic acid anodizing, the part to be anodized acts as the anode in the electrical circuit, and the chromic acid solution, with a concentration typically ranging from 50 to 100 grams per liter (g/L), serves as the electrolyte.
  - (c) (15) CHROMIUM ELECTROPLATING OR CHROMIC ACID ANODIZING TANK means the receptacle or container in which hard or decorative chromium electroplating or chromic acid anodizing occurs.

- (c) (16) COMPOSITE MESH-PAD SYSTEM (CMP) means an add-on air pollution control device typically consisting of several mesh-pad stages. The purpose of the first stage is to remove large particles. Smaller particles are removed in the second stage, which consists of the composite mesh pad. A final stage may remove any re-entrained particles not collected by the composite mesh pad.
- (c) (17) DECORATIVE CHROMIUM ELECTROPLATING means the process by which a thin layer of chromium (typically 0.003 to 2.5 microns) is electrodeposited on a base metal, plastic, or undercoating to provide a bright surface with wear and tarnish resistance. In this process, the part(s) serves as the cathode in the electrolytic cell and the solution serves as the electrolyte. Typical current density applied during this process ranges from 540 to 2,400 Amperes per square meter ( $A/m^2$ ) for total electroplating times ranging between 0.5 to 5 minutes.
- (c) (18) DRAGOUT means fluid containing hexavalent chromium that drips from electroplated or anodized parts, or from equipment used to remove electroplated or anodized parts from a tank.
- (c) (19) ELECTROPLATING OR ANODIZING BATH means the electrolytic solution used as the conducting medium in which the flow of current is accompanied by movement of metal ions for the purpose of electroplating metal out of the solution onto a workpiece or for oxidizing the base material.
- (c) (20) EMISSION LIMITATION means the concentration of total chromium allowed to be emitted expressed in milligrams per dry standard cubic meter ( $mg/dscm$ ), or the allowable surface tension expressed in dynes per centimeter ( $dynes/cm$ ) for decorative chromium electroplating and chromic acid anodizing tanks; and the milligrams of hexavalent chromium per ampere-hour ( $mg/amp-hr$ ) of electrical current applied to the electroplating tank for hard or decorative chromium electroplating tanks or chromic acid anodizing tanks, or mass emission rate for a Tier II or Tier III hexavalent chromium tank.
- (c) (21) ENCLOSED STORAGE AREA is any space or structure used to contain material that prevents its contents from being emitted into the atmosphere.
- (c) (22) ENCLOSURE OPENING is any permanent opening that is designed to be part of a building enclosure or permanent total enclosure, such as passages, doorways, bay doors, vents, roof openings, and windows. The term excludes

- openings that are designed to accommodate and generally conform to a stack or duct for a building enclosure or permanent total enclosure.
- (c) (23) EXISTING FACILITY means a facility that is in operation before October 24, 2007.
- (c) (24) FACILITY means a source located on one or more contiguous properties within the District, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control), or an outer continental shelf (OCS) source as determined in 40 CFR Section 55.2. Such above-described groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one facility. Sources or installations involved in crude oil and gas production in Southern California Coastal or OCS Waters and transport of such crude oil and gas in Southern California Coastal or OCS Waters shall be included in the same facility which is under the same ownership or use entitlement as the crude oil and gas production facility on-shore.
- (c) (25) FIBER-BED MIST ELIMINATOR means an add-on air pollution control device that removes contaminants from a gas stream through the mechanisms of inertial impaction and Brownian diffusion. This device consists of one or more fiber beds and is typically installed downstream of another control device, which serves to prevent plugging. Each bed consists of a hollow cylinder formed from two concentric screens; the fiber between the screens may be fabricated from glass, ceramic, plastic, or metal.
- (c) (26) FOAM BLANKET means the type of chemical fume suppressant that generates a layer of foam across the surface of a solution when current is applied to that solution.
- (c) (27) FRESH WATER means water, such as tap water, that has not been previously used in a process operation or, if the water has been recycled from a process operation, it has been treated and meets the effluent guidelines for chromium wastewater.
- (c) (28) FUGITIVE EMISSIONS means emissions generated from the operations at a facility, including solid particulate matter, gas, or mist, potentially containing hexavalent chromium that becomes airborne by natural or man-made activities, excluding particulate matter emitted from an exhaust stack.

- (c) (29) **HARD CHROMIUM ELECTROPLATING** or **INDUSTRIAL CHROMIUM ELECTROPLATING** means a process by which a thick layer of chromium (typically greater than 1.0 microns) is electrodeposited on a base material to provide a surface with functional properties such as wear resistance, a low coefficient of friction, hardness, and corrosion resistance. In this process, the part serves as the cathode in the electrolytic cell and the solution serves as the electrolyte. Hard chromium electroplating process is performed at current densities typically ranging from 1,600 to 6,500 A/m<sup>2</sup> for total electroplating times ranging from 20 minutes to 36 hours depending upon the desired plate thickness.
- (c) (30) **HEXAVALENT CHROMIUM** means the form of chromium in a valence state of +6.
- (c) (31) **HIGH EFFICIENCY PARTICULATE ARRESTORS (HEPA)** means filter(s) that are individually dioctyl phthalate tested and certified by the manufacturer to have a control efficiency of not less than 99.97 percent on 0.3 micron particles.
- (c) (32) **HEPA VACUUM** means a vacuum that is both designed for the use of and fitted with a HEPA filter.
- (c) (33) **LEAK** means the release of chromium emissions from any opening in the emission collection system prior to exiting the emission control device.
- (c) (34) **LOW PRESSURE SPRAY NOZZLE** means a water spray nozzle capable of regulating water pressure to 35 pounds per square inch or less.
- (c) (35) **MAJOR SOURCE** means any stationary source or group of stationary sources located within a contiguous area and under common control that emits, or has the potential to emit, considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.
- (c) (36) **MAXIMUM CUMULATIVE POTENTIAL RECTIFIER CAPACITY** means the summation of the total installed rectifier capacity associated with the hard chromium electroplating tanks at a facility, expressed in amperes, multiplied by the maximum potential operating schedule of 8,400 hours per year and 0.7, which assumes that electrodes are energized 70 percent of the total operating time. The maximum potential operating schedule is based on operating 24 hours per day, 7 days per week, 50 weeks per year.

- (c) (37) MECHANICAL FUME SUPPRESSANT means any physical device, including but not limited to polyballs that reduces fumes or mist at the surfaces of an electroplating or anodizing bath by direct contact with the surface of the bath.
- (c) (38) METAL REMOVAL FLUID means a fluid used at the tool and workpiece interface to facilitate the removal of metal from the part, cool the part and tool, extend the life of the tool, and to flush away metal chips and debris, but does not include minimum quantity lubrication fluids used to coat the tool work piece interface with a thin film of lubricant and minimize heat buildup through friction reduction. Minimum quantity lubrication fluids are applied by pre-coating the tool in the lubricant, or by direct application at the tool work piece interface with a fine mist.
- (c) (39) MODIFICATION means either:
  - (A) Any physical change in, change in method of operation of, or addition to an existing permit unit subject to this rule that requires an application for a SCAQMD Permit to Construct and/or Operate and results in an increase in hexavalent chromium emissions. Routine maintenance and/or repair shall not be considered a physical change. A change in the method of operation of equipment, unless previously limited by an enforceable permit condition, shall not include:
    - (i) An increase in the production rate or annual ampere-hours, unless such increases will cause the maximum design capacity of the equipment to be exceeded, or will cause a facility to be subject to a different requirement in Table 1 – Hexavalent Chromium Emission Limits for Hexavalent Hard and Decorative Chromium Electroplating and Chromic Acid Anodizing Tanks; or
    - (ii) An increase in the hours of operation; or
    - (iii) A change in ownership of a source;
  - (B) The addition of any new chromium electroplating or anodizing tank at an existing facility which increases hexavalent chromium emissions; or

- (C) The fixed capital cost of the replacement of components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source.
- (c) (40) MODIFIED FACILITY means any existing facility which has undergone a modification on or after October 24, 2007.
- (c) (41) NEW FACILITY means any facility that begins initial operations on or after October 24, 2007. "New Facility" does not include the installation of a new chromium electroplating or chromic acid anodizing tank at an existing facility or the modification of an existing facility.
- (c) (42) OPERATING PARAMETER VALUE means a minimum or maximum value established to monitor the proper operation of an air pollution control technique.
- (c) (43) PACKED-BED SCRUBBER means an add-on air pollution control device consisting of a single or double packed-bed that contains packing media on which the chromic acid droplets impinge. The packed-bed section of the scrubber is followed by a mist eliminator to remove any water entrained from the packed-bed section.
- (c) (44) PERFLUOROOCANE SULFONIC ACID (PFOS) BASED FUME SUPPRESSANT means a fume suppressant that contains 1 percent or greater PFOS (CAS No. 1763-23-1) by weight.
- (c) (45) PERMANENT TOTAL ENCLOSURE means a permanent building or containment structure, enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, run-off) that has limited openings to allow access for people and vehicles, that is free of breaks or deterioration that could cause or result in fugitive emissions, and has been evaluated to meet the design requirements set forth in U.S. EPA Method 204, or other design approved by the Executive Officer.
- (c) (46) RESPONSIBLE OFFICIAL means one of the following:
- (A) For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities and either:

- (i) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars); or
    - (ii) The delegation of authority to such representative is approved in advance by the U.S. EPA Administrator.
  - (B) For a partnership or sole proprietorship: a general partner or the proprietor, respectively.
  - (C) For a municipality, state, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of the U.S. EPA).
  - (D) For sources (as defined in this rule) applying for or subject to a Title V permit: “responsible official” shall have the same meaning as defined in SCAQMD’s Regulation XXX.
- (c) (47) SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for the education of more than 12 children at the school in kindergarten through grade 12. School also means an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as pre-schools, Early Head Start, Head Start, First Five, and Child Development Centers. A school does not include any private school in which education is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of school property.
- (c) (48) SCHOOL UNDER CONSTRUCTION means any property that meets any of the following conditions:
- (A) Construction of a school has commenced; or
  - (B) A California Environmental Quality Act Notice for the construction of a school has been issued; or
  - (C) A school has been identified in an approved local government specific plan.
- (c) (49) SENSITIVE RECEPTOR means any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (k-12) schools; daycare



- centers; and health care facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.
- (c) (50) SOURCE means any chromium electroplating or chromic acid anodizing operation and any equipment or materials associated with the air pollution control technique.
- (c) (51) STALAGMOMETER means a device used to measure the surface tension of a solution by determining the mass of a drop of liquid by weighing a known number of drops, or by counting the number of drops obtained from a given volume of liquid.
- (c) (52) SUBSTANTIAL USE of a SCAQMD Permit to Construct means one or more of the following:
- (A) The equipment that constitutes the source has been purchased or acquired;
  - (B) Construction activities, other than grading or installation of utilities or foundations, have begun and are continuing; or
  - (C) A contract to complete construction of the source within one year has been entered into.
- (c) (53) SURFACE TENSION means the property, due to molecular forces, that exists in the surface film of all liquids and tends to prevent liquid from spreading.
- (c) (54) TANK OPERATION means the time in which current and/or voltage is being applied to a chromium electroplating tank or a chromic acid anodizing tank.
- (c) (55) TANK PROCESS AREA means the area in the facility within 15 feet of any Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s), or to the nearest wall of a building enclosure or permanent total enclosure, whichever is closer.
- (c) (56) TENSIOMETER means a device used to measure the surface tension of a solution by measuring the force necessary to pull a filament, plate, ring, or other SCAQMD approved object from the surface of a liquid.
- (c) (57) TIER I HEXAVALENT CHROMIUM TANK means a tank permitted as containing a hexavalent chromium concentration of 1,000 parts per million (ppm) or greater and is not a Tier II or Tier III Hexavalent Chromium Tank.

- (c) (58) TIER II HEXAVALENT CHROMIUM TANK means a tank that is operated or permitted to operate by the SCAQMD within the range of temperatures and corresponding hexavalent chromium concentrations specified in Appendix 10 and is not a Tier III Hexavalent Chromium Tank.
- (c) (59) TIER III HEXAVALENT CHROMIUM TANK means a tank that meets any of the following:
  - (A) Is operated or permitted to operate by SCAQMD within the range of temperatures and corresponding hexavalent chromium concentrations specified in Appendix 10; or
  - (B) Contains a hexavalent chromium concentration greater than 1,000 ppm, and uses air sparging as an agitation method or is electrolytic; or
  - (C) Is a hexavalent chromium electroplating or chromic acid anodizing tank.
- (c) (60) TRIVALENT CHROMIUM means the form of chromium in a valence state of +3.
- (c) (61) TRIVALENT CHROMIUM PROCESS means the process used for electrodeposition of a thin layer of chromium onto a base material using a trivalent chromium solution instead of a chromic acid solution.
- (c) (62) WEEKLY means at least once every seven calendar days.
- (c) (63) WETTING AGENT means the type of chemical fume suppressant that reduces the surface tension of a liquid.
- (d) Requirements  
The owner or operator of a facility shall:
  - (d) (1) Equip each rectified tank with a continuous recording, non-resettable, ampere-hour meter that operates on the electrical power lines connected to the tank or group of tanks. A separate meter shall be hard wired for each tank;
  - (d) (2) Only use wetting agent chemical fume suppressants certified pursuant to subdivision (l) in hexavalent chromium electroplating or chromic acid anodizing tank(s);
  - (d) (3) Not air sparge a hexavalent chromium electroplating or chromic acid anodizing tank when electroplating or anodizing is not occurring, or while chromic acid is being added;

- (d) (4) Operate any Tier I, Tier II, or Tier III Hexavalent Chromium Tank within a building enclosure beginning January 31, 2019; and
- (d) (5) Operate any Tier II or Tier III Hexavalent Chromium Tank within a building enclosure that meets the requirements of subdivision (e).

(e) Requirements for Building Enclosures for Tier II and Tier III Hexavalent Chromium Tanks

Beginning May 1, 2019, the owner or operator of a facility shall operate Tier II or Tier III Hexavalent Chromium Tank(s) within a building enclosure that meets the following requirements:

- (e) (1) The combined area of all enclosure openings shall not exceed 3.5% of the building enclosure envelope, which is calculated as the total surface area of the building enclosure's exterior walls, floor, and horizontal projection of the roof on the ground. Information on calculations for the building enclosure envelope, including locations and dimensions of openings that are counted towards the applicable building envelope allowance, shall be provided in the compliance status reports required in paragraphs (p)(2) and (p)(3). Openings that close or use one or more of the following methods for the enclosure opening shall not be counted toward the combined area of all enclosure openings:
  - (A) Door that automatically closes; or
  - (B) Overlapping plastic strip curtain; or
  - (C) Vestibule; or
  - (D) Airlock system; or
  - (E) Alternative method to minimize the release of fugitive emissions from the building enclosure that the owner or operator of a facility can demonstrate to the Executive Officer is an equivalent or more effective method(s) to minimize the movement of air within the building enclosure.
- (e) (2) Ensure that any building enclosure openings that open to the exterior and are on opposite ends of the building enclosure where air can pass through are not simultaneously open except during the passage of vehicles, equipment or people, not to exceed two hours per operating day, by using one or more of the following:

- (A) A method specified in subparagraphs (e)(1)(A) through (e)(1)(E) for the enclosure opening(s) on one of the opposite ends of the building enclosure; or
  - (B) Utilize a barrier, such as large piece of equipment that restricts air from moving through the building enclosure.
- (e) (3) Except for the movement of vehicles, equipment or people, close any building enclosure opening or use any of the methods listed in subparagraphs (e)(1)(A) through (e)(1)(E), that directly faces and opens towards the nearest:
  - (A) Sensitive receptor, with the exception of a school, that is located within 1,000 feet, as measured from the property line of the sensitive receptor to the building enclosure opening; and
  - (B) School that is located within 1,000 feet, as measured from the property line of the school to the building enclosure opening.
- (e) (4) Close all enclosure openings in the roof that are located within 15 feet from the edge of any Tier II or Tier III Hexavalent Chromium Tank except enclosure openings in the roof that:
  - (A) Allow access for equipment or parts; or
  - (B) Provide intake or circulation air for a building enclosure and does not create air velocities that impact the collection efficiency of a ventilation system for an add-on air pollution control device; or
  - (C) Are equipped with a HEPA filter or other air pollution control device.
- (e) (5) Repair any breach in a building enclosure located within 15 feet from the edge of any Tier II or Tier III Hexavalent Chromium Tank within 72 hours of discovery. The owner or operator of a facility may request an extension by calling 1-800-CUT-SMOG. The Executive Officer may approve a request for an extension beyond the 72-hour limit if the request is submitted before the 72-hour time limit has expired and the owner or operator of a facility provides information that substantiates:
  - (A) The repair will take longer than 72 hours, or the equipment, parts, or materials needed for the repair cannot be obtained within 72 hours; and
  - (B) Temporary measures are implemented that ensure no fugitive emissions result from a breach.

- (e) (6) The owner or operator of a facility shall notify the Executive Officer if any of the requirements specified in paragraphs (e)(1) through (e)(4) cannot be complied with due to conflicting requirements set forth by the federal Occupational Safety and Health Administration (OSHA), California Division of Occupational Safety and Health (CAL-OSHA), or other municipal codes or agency requirements directly related to worker safety. A Building Enclosure Compliance Plan shall be submitted to the Executive Officer for review and approval no later than December 2, 2018 for facilities existing before November 2, 2018, and prior to initial start-up for all other facilities. The Building Enclosure Compliance Plan shall be subject to plan fees specified in Rule 306 and include:
  - (A) An explanation as to why the provision(s) specified in paragraphs (e)(1) through (e)(4) is in conflict with the requirements set forth by OSHA or CAL-OSHA, or other municipal codes or agency requirements directly related to worker safety; and
  - (B) Alternative compliance measure(s) that will be implemented to minimize the release of fugitive emissions to the outside of the building enclosure.
- (e) (7) The Executive Officer shall notify the owner or operator of a facility in writing whether the Building Enclosure Compliance Plan is approved or disapproved.
  - (A) If the Building Enclosure Compliance Plan is disapproved, the owner or operator of a facility shall submit a revised Building Enclosure Compliance Plan within 30 calendar days after notification of disapproval of the Building Enclosure Compliance Plan. The revised Building Enclosure Compliance Plan shall include any information to address deficiencies identified in the disapproval letter.
  - (B) The Executive Officer will either approve the revised Building Enclosure Compliance Plan or modify the Building Enclosure Compliance Plan and approve it as modified. The owner or operator may appeal the Building Enclosure Compliance Plan modified by the Executive Officer to the Hearing Board pursuant to Rule 216 – Appeals and Rule 221 – Plans.

- (e) (8) The owner or operator of a facility shall implement the Building Enclosure Compliance Plan specified in paragraphs (e)(6) and (e)(7), as approved by the Executive Officer, no later than 90 days after receiving notification of approval for facilities existing before November 2, 2018, and prior to initial start-up for all other facilities. Compliance with the approved alternative compliance measures shall constitute compliance with the applicable provisions of paragraphs (e)(1) through (e)(4).
- (e) (9) The owner or operator of a facility that has applied for an SCAQMD permit to install or is required to install an add-on air pollution control device to control either a Tier II or Tier III Hexavalent Chromium Tank(s) shall be exempt from paragraphs (e)(1) and (e)(4) until the add-on air pollution control device has been installed and commenced normal operation.
- (f) Housekeeping Requirements  
An owner or operator of a chromium electroplating or chromic acid anodizing facility shall:
  - (f) (1) Store chromic acid powder or flakes, or other substances that may contain hexavalent chromium, in a closed container in an enclosed storage area when not in use;
  - (f) (2) Use a closed container when transporting chromic acid powder or flakes from an enclosed storage area to chromium electroplating or chromic acid anodizing tanks;
  - (f) (3) Clean, using an approved cleaning method, or contain, using a drip tray or other containment device, any liquid or solid material that may contain hexavalent chromium that is spilled immediately and no later than one hour after being spilled;
  - (f) (4) Clean, using an approved cleaning method, surfaces within the enclosed storage area, open floor area, walkways around the chromium electroplating or chromic acid anodizing tank(s), or any surface potentially contaminated with hexavalent chromium or surfaces that potentially accumulate dust weekly;
  - (f) (5) Store, dispose of, recover, or recycle chromium or chromium-containing wastes generated from housekeeping activities of this subdivision using practices that do not lead to fugitive emissions. Containers with chromium-

- containing waste material shall be kept closed at all times except when being filled or emptied;
- (f) (6) Beginning December 2, 2018, use an approved cleaning method to clean floors within 20 feet of a buffing, grinding, or polishing workstation on days when buffing, grinding, or polishing are conducted; and
  - (f) (7) Beginning December 2, 2018, eliminate all flooring on walkways in the tank process areas that is made of fabric, such as carpets or rugs, where hexavalent chromium containing materials can become trapped.
  - (f) (8) Abatement of Hexavalent Chromium Prior to Cutting of Roof Surfaces  
The owner or operator a facility shall:
    - (A) Clean affected surface areas using a HEPA vacuum prior to cutting into a building enclosure roof;
    - (B) Minimize fugitive emissions during cutting activities using method(s) such as a temporary enclosure and/or HEPA vacuuming; and
    - (C) Notify the Executive Officer at least 48 hours prior to the commencement of any roof cutting activities into a building enclosure by calling 1-800-CUT-SMOG.
  - (f) (9) Ensure that if a HEPA vacuum is used, that the HEPA filter is free of tears, fractures, holes or other types of damage, and securely latched and properly situated in the vacuum to prevent air leakage from the filtration system.
  - (g) Best Management Practices
    - (g) (1) The owner or operator of a facility shall minimize dragout from a chromium electroplating or chromic acid anodizing tank for:
      - (A) An automated line by installing a drip tray, or other containment device between the chromium electroplating or chromic acid anodizing tank such that liquid does not fall through the space between tanks. The trays shall capture and return the liquid to the tank(s), and be cleaned such that there is no accumulation of visible dust or residue on the drip tray or other containment device potentially contaminated with hexavalent chromium.
      - (B) A non-automated line by handling each electroplated or anodized part, or equipment used to handle these parts, so that liquid containing chromium or chromic acid is not dripped outside the

chromium electroplating, chromic acid anodizing tank, or associated process tank, unless the liquid is captured by a drip tray or other containment device. Facilities spraying down parts over the chromium electroplating or chromic acid anodizing tank(s) to remove excess chromic acid shall have a splash guard installed at the tank to minimize overspray and to ensure that any hexavalent chromium laden liquid is captured and returned to the chromium electroplating or chromic acid anodizing tank. Splash guards shall be cleaned such that there is no accumulation of visible dust potentially contaminated with hexavalent chromium.

- (g) (2) Beginning January 31, 2019, the owner or operator of a facility that conducts chromium electroplating or chromic acid anodizing operations shall not spray rinse parts or equipment that were previously in a Tier II or Tier III Hexavalent Chromium Tank, unless the parts or equipment are fully lowered inside a tank where the liquid is captured inside the tank. The owner or operator of a facility may alternatively ensure that any liquid containing chromium is captured and returned to the tank by meeting the following conditions when rinsing above a tank:
  - (A) Installing a splash guard(s) at the tank that is free of holes, tears, or openings. Splash guards shall be cleaned weekly with water; or
  - (B) For tanks located within a process line utilizing an overhead crane system that would be restricted by the installation of splash guards specified in subparagraph (g)(2)(A), use a low pressure spray nozzle in a manner where water flows off of the part or equipment and into the tank.
- (g) (3) Beginning January 1, 2019, the owner or operator of a facility shall maintain clear labeling of each tank within the tank process area with a tank number or other identifier, SCAQMD permit number, bath contents, maximum concentration (ppm) of hexavalent chromium, operating temperature range, any agitation methods used, and designation of whether it is a Tier I, Tier II, or Tier III Hexavalent Chromium Tank, if applicable.
- (g) (4) Beginning January 31, 2019, the owner or operator of a facility shall conduct all buffing, grinding, and polishing operations within a building enclosure.



- (g) (5) Beginning January 31, 2019, the owner or operator of a facility shall install a barrier to prevent the migration of dust from buffing, grinding, or polishing areas to the chromium electroplating or chromic acid anodizing operation.
- (g) (6) The owner or operator of a facility shall not conduct compressed air cleaning or drying operations within 15 feet of any Tier II or Tier III Hexavalent Chromium Tank(s) unless:
  - (A) A barrier separates the compressed air cleaning or drying operation from the Tier II or Tier III Hexavalent Chromium Tank(s). A tank wall may function as the barrier provided the parts being air cleaned or dried are below the lip of the tank; or
  - (B) Compressed air cleaning or drying operations are conducted in a permanent total enclosure.
- (h) Air Pollution Control Technique Requirements
- (h) (1) The owner or operator of a facility shall not remove or render inoperable add-on air pollution control device(s) for hard or decorative chromium electroplating or chromic acid anodizing tanks unless it is replaced by air pollution control techniques meeting the requirements in Table 1 - Hexavalent Chromium Emission Limits for Hexavalent Hard and Decorative Chromium Electroplating and Chromic Acid Anodizing Tanks, or the facility is operating under an approved alternative compliance method pursuant to subdivision (i).
- (h) (2) Emission Standards for Hexavalent Hard and Decorative Chromium Electroplating and Chromic Acid Anodizing Facilities
  - (A) The owner or operator of a facility shall control hexavalent chromium emissions discharged to the atmosphere by meeting the requirements identified below in Table 1 - Hexavalent Chromium Emission Limits for Hard and Decorative Chromium Electroplating and Chromic Acid Anodizing Tanks. Alternatively, a facility can choose to comply by operating under an approved alternative compliance method pursuant to subdivision (i).

**Table 1: Hexavalent Chromium Emission Limits for Hard and Decorative Chromium Electroplating and Chromic Acid Anodizing Tanks**

Facility Type	Distance to Sensitive Receptor (feet)	Annual Permitted Amp-Hrs	Hexavalent Chromium Emission Limit (mg/amp-hr)	Minimum Air Pollution Control Technique
Existing Facility	$\leq 330^1$	$\leq 20,000$	0.01	Use of Certified Chemical Fume Suppressant at or below the certified surface tension. <sup>3</sup>
Existing Facility	$\leq 330^1$	$> 20,000$	0.0015 <sup>2</sup>	Add-on air pollution control device(s) or add-on non-ventilated air pollution control device(s).
Existing Facility	$> 330^1$	$\leq 50,000$	0.01	Use of Certified Chemical Fume Suppressant at or below the certified surface tension. <sup>3</sup>
Existing Facility	$> 330^1$	$> 50,000$ and $\leq 500,000$	0.0015 <sup>2</sup>	Use of an air pollution control technique that controls hexavalent chromium.
Existing Facility	$> 330^1$	$> 500,000$	0.0015 <sup>2</sup>	Add-on air pollution control device(s) or add-on non-ventilated air pollution control device(s).
Modified Facility	Any	Any	0.0015 <sup>2</sup>	Using an add-on air pollution control device(s), or an approved alternative method pursuant to subdivision (i).
New Facility	Any	Any	0.0011 <sup>2</sup>	Using a HEPA add-on air pollution control device, or an approved alternative method pursuant to subdivision (i).

<sup>1</sup> Distance shall be measured, rounded to the nearest foot, from the edge of the chromium electroplating or chromic acid anodizing tank nearest the sensitive receptor (for facilities without add-on air pollution control devices), or from the stack or centroid of stacks (for facilities with add-on air pollution control devices), to the property line of the nearest sensitive receptor. The symbol  $\leq$  means less than or equal to. The symbol  $>$  means greater than.

<sup>2</sup> As demonstrated by source test requirements under subdivision (k).

<sup>3</sup> Alternatively, a facility may install an add-on air pollution control device(s) or add-on non-ventilated air pollution control device(s) that controls hexavalent chromium emissions to below 0.0015 mg/amp-hr as demonstrated through source test requirements under subdivision (k).

- (B) The owner or operator of a new facility shall:
- (i) Demonstrate in its SCAQMD permit application that the new facility is not located in an area that is zoned for residential or mixed use; and
  - (ii) Demonstrate in its SCAQMD permit application that the new facility is not located within 1,000 feet from the boundary of a sensitive receptor, a school under

construction, or any area that is zoned for residential or mixed use.

(C) A new facility shall be deemed to meet the requirements specified in clauses (h)(2)(B)(i) and (h)(2)(B)(ii) if one of the following criteria is met, even if the facility does not meet the requirement at the time of initial start-up:

- (i) The requirements specified in clauses (h)(2)(B)(i) and (h)(2)(B)(ii) are met at the time an SCAQMD Permit to Construct is issued, and substantial use of the SCAQMD Permit to Construct takes place within one year after it is issued; or
- (ii) The requirements specified in clauses (h)(2)(B)(i) and (h)(2)(B)(ii) are met at the time an SCAQMD Permit to Construct is issued, and substantial use of the SCAQMD Permit to Construct occurs before any zoning change that affects the operation's ability to meet the requirement at the time of initial start-up.

(D) Prior to initial start-up, the owner or operator of a new facility shall meet the requirements specified in paragraph (h)(2).

(h) (3) Decorative Chromium Electroplating Tanks Using a Trivalent Chromium Bath

During tank operation, the owner or operator of a facility shall control chromium emissions discharged to the atmosphere by meeting one or more of the requirements identified below.

Method of compliance	Requirement
Add-on air pollution control device, or chemical fume suppressants forming a foam blanket, or mechanical fume suppressants (e.g. polyballs)	$\leq 0.01$ milligrams of total chromium per dry standard cubic meter of air (mg/dscm) ( $4.4 \times 10^{-6}$ gr/dscf) as demonstrated with an initial source test using an approved method pursuant to paragraph (k)(2)
Chemical fume suppressants containing a wetting agent that is not a PFOS based fume suppressant	Use wetting agent as bath component and comply with recordkeeping and reporting provisions of paragraphs (o)(10) and (p)(5)

- (h) (4) Tier III Hexavalent Chromium Tanks (Excluding Chromium Electroplating and Chromic Acid Anodizing Tanks)
  - (A) The owner or operator of a facility shall collect and vent hexavalent chromium emissions from any Tier III Hexavalent Chromium Tank, excluding chromium electroplating and chromic acid anodizing tanks subject to paragraph (h)(2), to an add-on air pollution control device, or an approved alternative compliance method pursuant to subdivision (i), that meets the following hexavalent chromium emission limits as demonstrated by source test requirements under subdivision (k):
    - (i) 0.0015 mg/amp-hr, for existing or modified facilities, if any tank(s) vented to an air pollution control device are electrolytic;
    - (ii) 0.0011 mg/amp-hr, for new facilities, if any tank(s) vented to an air pollution control device are electrolytic;
    - (iii) 0.20 mg/hr, if all tanks vented to the add-on air pollution control device are not electrolytic and the ventilation system has a maximum exhaust rate of 5,000 cfm or less; or
    - (iv) 0.004 mg/hr-ft<sup>2</sup>, with the applicable surface area based on the surface area of all Tier III Hexavalent Chromium Tank(s) and other tanks required to be vented to an add-on air pollution control device with a SCAQMD Permit to Operate, provided all tanks are not electrolytic, if the ventilation system has a maximum exhaust rate of greater than 5,000 cfm.
  - (B) For Tier III Hexavalent Chromium Tanks specified in subparagraph (h)(4)(A) existing prior to November 2, 2018, the owner or operator of a facility shall submit complete SCAQMD permit applications for add-on air pollution control devices to the Executive Officer as specified below:

**Table 2: Permit Submittal Schedule for Add-on Air Pollution Control Devices for Previously Existing Tier III Hexavalent Chromium Tanks<sup>1</sup>**

<b>Electrolytic Process at the Facility</b>	<b>Compliance Date for SCAQMD Permit Application Submittal for Add-on Air Pollution Control Device</b>
Chromic Acid Anodizing	May 1, 2019
Hard Chromium Electroplating	November 2, 2019
Decorative Chromium Electroplating	April 30, 2020

<sup>1</sup> For multiple electrolytic processes at a facility, the owner or operator shall comply with the earliest compliance date.

- (i) The owner or operator of a facility shall conduct a source test prior to the issuance of a SCAQMD Permit to Operate.
- (ii) Beginning no later than December 2, 2018 until the add-on air pollution control device specified in subparagraph (h)(4)(C) has been installed, cover the tank no later than 30 minutes after ceasing operation of the tank. Tank covers shall be free of holes, tears, and gaps.

(C) The owner or operator of a facility shall:

- (i) Install an add-on air pollution control device to meet the requirements under subparagraph (h)(4)(A) no later than 12 months after a Permit to Construct for the add-on air pollution control device has been issued by the Executive Officer;
- (ii) Implement the alternative compliance method to meet the requirements under subparagraph (h)(4)(A) based on the timeframe specified in the approved alternative compliance method; or
- (iii) No later than two years after approval, implement an approved Hexavalent Chromium Phase-Out Plan pursuant to subdivision (u).

(D) The owner or operator of a facility shall not be subject to the requirement of subparagraph (h)(4)(A) to vent a Tier III Hexavalent Chromium Tank to an add-on air pollution control device if the uncontrolled hexavalent chromium emission rate of the tank is less than 0.2 mg/hr, as demonstrated by a SCAQMD approved source

test. The source test shall be conducted pursuant to the Technical Guidance Document for *Measurement of Hexavalent Chromium Emissions from Chromium Plating and Chromic Acid Anodizing Operations for Certification of Wetting Agent Chemical Mist Suppressant Subject to SCAQMD Rule 1469*.

- (h) (5) Tier II Hexavalent Chromium Tank  
The owner or operator of a facility shall control hexavalent chromium emissions from a Tier II Hexavalent Chromium Tank by:
  - (A) Utilizing a tank cover, mechanical fume suppressant, or other method approved by the Executive Officer, no later than January 31, 2019; or
  - (B) Meeting the requirements for a Tier III Hexavalent Chromium Tank specified in subparagraphs (h)(4)(A) and (h)(4)(B).
- (h) (6) Ventilation Design and Operation of Air Pollution Control Techniques  
The owner or operator of a facility shall operate air pollution control techniques required under subdivisions (h) at or above the applicable minimum hood induced capture velocity specified in the most current edition (i.e., at the time the SCAQMD permit application was deemed complete by SCAQMD) of *Industrial Ventilation, A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists.
- (i) Alternative Compliance Methods for Existing, Modified, and New Hexavalent Decorative and Hard Chromium Electroplating and Chromic Acid Anodizing Facilities  
The owner or operator of a facility that elects to submit an alternative compliance method to meet the emission limits specified in paragraphs (h)(2) and (h)(4) shall:
  - (i) (1) Submit an SCAQMD permit application that includes the information contained in Appendix 7 to the Executive Officer; and
  - (i) (2) Demonstrate that the alternative method is enforceable, provides an equal, or greater hexavalent chromium emission reduction, and provides an equal, or greater risk reduction than compliance with the emission limits specified in paragraphs (h)(2) and (h)(4) .

- (j) Training and Certification
  - (j) (1) Chromium electroplating and chromic acid anodizing personnel responsible for environmental compliance, maintaining electroplating bath chemistries, and testing and recording electroplating bath surface tension data shall complete a SCAQMD approved training program every two years and receive a certification issued by the Executive Officer. For new facilities, initial training must be completed within a period not to exceed two years from start-up.
  - (j) (2) Only persons who have completed a SCAQMD approved training program and have received a certification issued by the Executive Officer shall be responsible for recordkeeping associated with environmental compliance, maintaining electroplating bath chemistries, and testing and recording electroplating bath surface tension data.
  - (j) (3) Notwithstanding paragraph (j)(2), in the event that all persons who have completed a SCAQMD approved training program and received a certification issued by the Executive Officer leaves employment at a facility, the owner or operator of a facility may be responsible for recordkeeping associated with environmental compliance, maintaining electroplating bath chemistries, and testing and recording electroplating bath surface tension data for a period not to exceed two years.
- (k) Source Test Requirements and Test Methods
  - (k) (1) Source Test Requirements
    - (A) The owner or operator of a facility required to meet an emission limit pursuant to paragraphs (h)(2) or (h)(4) shall conduct an initial source test and subsequent source tests pursuant to the schedule specified in Table 3 – Source Tests Schedule.

**Table 3: Source Tests Schedule**

<b>Facility-wide Permitted Annual Ampere-Hours</b>	<b>Due Date of Initial Source Test Protocol<sup>a</sup></b>	<b>Initial Source Test Date</b>	<b>Due Date of Subsequent Source Test Protocol</b>	<b>Subsequent Source Tests</b>
> 20,000,000	No later than May 1, 2019	No later than 120 days after approval of the initial source test protocol.	180 days prior to the due date of the subsequent source test.	No later than 60 months from the day of the most recent source test that demonstrates compliance with all applicable requirements
≤ 20,000,000 and > 1,000,000	No later than November 2, 2019			No later than 84 months from the day of the most recent source test that demonstrates compliance with all applicable requirements
≤ 1,000,000	No later than April 30, 2020			

<sup>a</sup> New or modified air pollution control techniques used to meet the emission limits under paragraphs (h)(1), (h)(2), or (h)(4) permitted after November 2, 2018, shall submit the initial source test protocol 60 days after initial start-up of the air pollution control technique.

- (B) The owner or operator of a facility may conduct the initial source test after the 120 days specified in Table 3 – Source Tests Schedule, provided:
- (i) A written request 30 days before the due date of the source test is submitted to the Executive Officer;
  - (ii) The additional time needed is substantiated by reason(s) outside of their control; and
  - (iii) The Executive Officer approves the request in writing no later than the due date of the source test.
- (C) The owner or operator of a facility may use an existing source test conducted after January 1, 2015 to demonstrate compliance with the initial source test requirements of subparagraph (k)(1)(A), provided:
- (i) The applicable emission limits in subdivision (h) are demonstrated;
  - (ii) The operating conditions during the source test are representative of the operating conditions as of November 2, 2018; and
  - (iii) Test methods specified in paragraph (k)(2) are used.
- (D) No later than December 2, 2018, an owner or operator of a facility using a source test pursuant to subparagraph (k)(1)(C) that has not



been approved, shall submit the source test to the Executive Officer for approval.

- (E) An owner or operator of a facility that elects to use an existing source test pursuant to subparagraph (k)(1)(C), shall conduct the first subsequent source test no later than January 1, 2024 and conduct all other subsequent source tests pursuant to schedule in Table 3 - Source Tests Schedule.
  - (F) An owner or operator of facility that elects to meet an emission limit specified in paragraph (h)(2) using only a certified wetting agent chemical fume suppressant or a certified alternative to a wetting agent chemical fume suppressant shall not be subject to the requirements of subparagraph (k)(1)(A).
- (k) (2) Approved Test Methods
- (A) Emissions testing shall be conducted in accordance with one of the following test methods:
    - (i) CARB Test Method 425, last amended July 28, 1997, (section 94135, Title 17, California Code of Regulations (CCR)); or
    - (ii) U.S. EPA Method 306, (40 CFR 63 Appendix A) with a minimum of three test runs; or
    - (iii) SCAQMD Method 205.1, for results reported as total chromium.
  - (B) Emissions testing for add-on non-ventilated air pollution control devices shall be conducted in accordance with a Smoke Test for Add-on Non-Ventilated Air Pollution Control Device(s). (See Appendix 5).
  - (C) Surface tension using a tensiometer shall be measured in accordance with U.S. EPA Method 306B (40 CFR 63 Appendix A). Surface tension using a stalagmometer shall be measured using the procedure set forth in Appendix 9, or an alternative procedure approved by the Executive Officer.
- (k) (3) Use of Emissions Screening Tests
- (A) The owner or operator of a facility that elects to use an emissions screening test in lieu of a source test to comply with the subsequent

source test requirements in Table 3 - Source Tests Schedule shall conduct an emissions screening test:

- (i) Consisting of one run to evaluate the hexavalent chromium emissions for a Tier II or Tier III Hexavalent Chromium Tank;
- (ii) In accordance with a source test protocol approved by the Executive Officer; and
- (iii) Representative of the operating conditions during the most recent source test.

(B) The owner or operator of a facility may conduct an emissions screening test in lieu of a source test to comply with the requirements for an initial source test in Table 3 — Source Tests Schedule provided:

- (i) The emissions screening test meets the requirements of clauses (k)(3)(A)(i) through (iii);
- (ii) The owner or operator of a facility conducted a source test after January 1, 2009 that meets the requirements of clauses (k)(1)(C)(i) through (iii); and
- (iii) No later than December 2, 2018, an owner or operator of a facility using a source test that is not approved to satisfy clause (k)(3)(B)(ii) shall submit the source test to the Executive Officer for approval.

(C) Within 30 days of receiving the results, the owner or operator of a facility shall submit the results of the emissions screening test to the Executive Officer.

(D) The owner or operator of a facility shall conduct a source test using an approved test method specified under paragraph (k)(2) within 60 days of conducting an emissions screening test that:

- (i) Failed the capture efficiency test(s) specified in the source test protocol;
- (ii) Exceeded an emission limit specified in the SCAQMD Permit to Operate; or
- (iii) Exceeded an emission standard specified in subdivision (h).

- (k) (4) Source Test Protocol
  - (A) The source test protocol shall include the source test criteria, all assumptions, required data, and calculated targets for testing the following:
    - (i) Target chromium concentration;
    - (ii) Preliminary chromium analytical data; and
    - (iii) Planned sampling parameters.
  - (B) The most recent SCAQMD approved source test protocol may be used for subsequent source tests, provided there are no changes to the tank dimensions, collection slots, ventilation flow rate, sampling location(s), sampling method, or analytic method(s).
- (k) (5) Emission Points Test Requirements

Each emission point subject to the requirements of this rule shall be tested unless a waiver is granted by U.S. EPA and approved by the Executive Officer.
- (k) (6) Capture Efficiency

The owner or operator of a facility that is required to conduct a source test pursuant to subdivision (k) shall demonstrate that each add on-air pollution control device meets the design criteria and ventilation velocities specified in *A Manual of Recommended Practice for Design* authored by the American Conference of Governmental Industrial Hygienists or alternative design criteria and ventilation velocities approved by the Executive Officer.
- (k) (7) Smoke Test

The owner or operator of a facility shall conduct an acceptable smoke test for each add-on non-ventilated air pollution control device pursuant to Appendix 5 and each add-on air pollution control device pursuant to Appendix 8.
- (l) Certification and Approval of Wetting Agent Chemical Fume Suppressants
  - (1) The owner or operator of a facility shall not add PFOS based chemical fume suppressants to any chromium electroplating or chromic acid anodizing bath.
  - (2) The owner or operator of a facility that elects to use a wetting agent chemical fume suppressant to comply with the requirements of this rule shall only use a wetting agent chemical fume suppressant(s) that:

- (A) Reduces or suppresses hexavalent chromium emissions at the surface of an electroplating or anodizing bath to meet an emission factor below 0.01 milligrams per ampere hour,
  - (B) Meets a surface tension below 40 dynes/cm, as measured by a stalagmometer, or below 33 dynes/cm, as measured by a tensiometer, unless an alternative is approved pursuant to subdivision (q), and
  - (C) Has been certified by the Executive Officer based on a certification process conducted by SCAQMD and CARB.
- (l) (3) The owner or operator of a facility shall use a certified wetting agent chemical fume suppressant in accordance with the certification and applicable manufacturer's specifications.
- (l) (4) No later than January 1, 2020, the owner or operator of a facility shall be notified by the Executive Officer the status of:
- (A) Any wetting agent chemical fume suppressant available on and after July 1, 2021 that meets the requirements specified in paragraphs (1)(2); and
  - (B) Any potential wetting agent chemical fume suppressant going through the certification process conducted by SCAQMD and CARB.
- (l) (5) If a wetting agent chemical fume suppressant will not be available by July 1, 2021, the owner or operator of a facility shall only add a wetting agent chemical fume suppressant to a chromium electroplating or chromic acid anodizing tank based on the information in the notice as specified by paragraph (l)(4) and:
- (A) On or before July 1, 2021, meet the hexavalent chromium emission limit specified in Table 1 – Hexavalent Chromium Emission Limits for Hard and Decorative Chromium Electroplating and Chromic Acid Anodizing Tanks;
  - (B) On or before July 1, 2022, phase-out the use of hexavalent chromium in the chromium electroplating or chromic acid anodizing tanks that use a wetting agent chemical fume suppressant that meets the requirements of paragraph (l)(6); or

- (C) On or before July 1, 2021 implement an alternative to a wetting agent chemical fume suppressant that meets the requirements of paragraph (l)(7).
- (l) (6) The owner or operator of a facility that elects to meet the requirements of paragraph (l)(5) by phasing out the use of hexavalent chromium in a chromium electroplating or chromic acid anodizing tank shall:
  - (i) No later than January 1, 2021, submit a written and signed commitment to the Executive Officer stating that the facility will phase out by July 1, 2022, the use of hexavalent chromium in the electroplating or chromic acid anodizing tank(s) that use a wetting agent chemical fume suppressant.
  - (ii) No later than July 1, 2022 cease operating and surrender SCAQMD permits to operate the chromium electroplating or chromic acid anodizing tank(s) that use a wetting agent chemical fume suppressant.
- (l) (7) The owner or operator of a facility that elects to meet the requirements of paragraph (l)(5) by implementing an alternative to a wetting agent chemical fume suppressant, shall submit a permit application for the chromium electroplating or chromic acid anodizing tank(s) that includes the alternative and any conditions specified in the approval of the alternative in paragraph (l)(8).
- (l) (8) The alternative to a wetting agent chemical fume suppressant specified in paragraph (l)(7) shall:
  - (A) Meet an emission limit that is equally effective as the emission limit required for a wetting agent chemical fume suppressant specified in subparagraph (l)(2)(A);
  - (B) Be approved by the Executive Officer in consultation with CARB to meet the requirement specified in subparagraph (l)(2)(A); and
  - (C) Be used by the owner or operator in accordance with the approval specified in subparagraph (l)(8)(B).
- (l) (9) An owner or operator of a facility that fails to phase out the use of hexavalent chromium by July 1, 2022 pursuant to paragraph (l)(6) will be required to cease operation of the electroplating or chromic acid anodizing tank that contains hexavalent chromium until the facility can meet the emission limits specified in paragraph (h)(2) for the subject tank.

- (m) Parameter Monitoring
- (m) (1) Add-On Air Pollution Control Device(s) and Add-On Non Ventilated Air Pollution Control Device(s)
  - (A) Pressure and Air Flow

The owner or operator of a facility shall continuously monitor the operation of the add-on air pollution control device by:

    - (i) Installing and maintaining a device to measure the applicable pressures and air flows specified in Table 4 — Pressure and Air Flow Measurement Parameters;
    - (ii) Installing each device so that it is accessible and in clear sight of the operation or maintenance personnel;
    - (iii) Maintaining all parameters identified in Table 4 — Pressure and Air Flow Measurement Parameters within the range specified in the facility’s SCAQMD Permit to Operate;
    - (iv) Labeling each mechanical gauge with the corresponding acceptable operating ranges established during the most recent source test and within the range specified in the SCAQMD Permit to Operate; and
    - (v) Maintaining the mechanical gauges in accordance to the requirements in Appendix 4.

**Table 4:  
Pressure and Air Flow Measurement Parameters**

<b>Permitted Air Pollution Control Technique</b>	<b>Location</b>	<b>Parameter Monitored</b>	<b>Units</b>	<b>Monitoring Start Date</b>
Push-Pull Systems	Push Manifold	Static Pressure	Inches of water	60 Days After Completion of Initial Source Test or within January 1, 2019
All	Collection Manifold or Any Location within the System Using a Flow Meter	Static Pressure or Volumetric Flow Rate	Inches of water or Actual Cubic Feet per Minute	60 Days After Completion of Initial Source Test or within January 1, 2019
Existing on or Before November 2, 2018	Across Each Stage of the Control Device	Differential Pressure	Inches of water	November 2, 2018
Installed after November 2, 2018	Across Each Stage of the Control Device	Differential Pressure	Inches of water	60 Days After Completion of Initial Source Test

(B) Velocity of Collection Slots

Beginning 60 days after the completion of the initial source test required in Table 3 – Source Tests Schedule and at least once every 180 days thereafter, the owner or operator of a facility shall demonstrate that emissions are captured by the add-on air pollution control device that meets the requirements in Table 5 – Add-on Air Pollution Control Device Parameter Monitoring using any of the following:

- (i) A hot-wire anemometer;
- (ii) A vane anemometer; or
- (iii) A device or method approved by the Executive Officer.

**Table 5: Add-on Air Pollution Control Device Parameter Monitoring**

	<b>Collection Slot(s) Velocity<sup>1</sup></b>	<b>Push Air Manifold Pressure (for push- pull systems only)</b>	<b>Required Action</b>
<b>Row 1: Acceptable Measurement</b>	> 95% of the most recent passing source test or emission screening; or $\geq 2,000$ fpm	95-105% compared to the most recent passing source test or emission screening	None
<b>Row 2: Repairable Measurement</b>	90-95% of the most recent passing source test or emission screening test, or < 2,000 fpm and > 1,800 fpm	90-95% or 105-110% of the most recent passing source test or emission screening test	Repair or replace, and re-measure within 3 calendar days of measurement
<b>Row 3: Failing Measurement</b>	< 90% of the most recent passing source test or emission screening test, or < 1,800 fpm	> 110% or < 90% of the most recent passing source test or emission screening test	Immediately shut down any tanks controlled by the add-on air pollution control device that had a failing measurement

<sup>1</sup> If the measured slot velocity appears in multiple rows, the owner or operator shall implement the required action in the lower numbered row. For example the owner or operator would implement the required action in Row 2, if the measured slot velocity shows a repairable measurement (row 2) or a failing measurement (row 3).

(C) **Repairable Measurements**

The owner or operator of a facility with an add-on air pollution control device for a Tier II or Tier III Hexavalent Chromium Tank that demonstrates a repairable measurement according to Table 5 – Add-on Air Pollution Control Device Parameter Monitoring shall:

- (i) Perform the required action specified in Table 5 – Add-on Air Pollution Control Device Parameter Monitoring for a repairable measurement,
- (ii) Demonstrate an acceptable measurement within the time period established for the required action specified in Table 5 – Add-on Air Pollution Control Device Parameter Monitoring, and
- (iii) Immediately shutdown the Tier II or Tier III Hexavalent Chromium Tank if an acceptable measurement is not demonstrated within the time period established for the required action specified in Table 5 – Add-on Air Pollution Control Device Parameter Monitoring. The tank shall remain shutdown until an acceptable measurement is measured.



(D) Failing Measurement

The owner or operator of a facility with an add-on air pollution control device for a Tier II or Tier III Hexavalent Chromium Tank that demonstrates a failing measurement according to Table 5 – Add-on Air Pollution Control Device Parameter Monitoring shall perform the required action specified in Table 5 – Add-on Air Pollution Control Device Parameter Monitoring for a failing measurement. The tank shall remain shutdown until an acceptable measurement is measured.

(E) Smoke Test Requirements

Once every 180 days the owner or operator of a facility subject to subparagraph (k)(7) shall conduct a smoke test:

- (i) Using a method described in Appendix 5, Appendix 8, or any other method deemed acceptable by the Executive Officer; and
- (ii) Within 30 days of start-up for new and modified add-on air pollution control devices or add-on non-ventilated air pollution control devices.

(F) Failure of Smoke Test

The owner or operator of a facility shall immediately shut down all Tier II and Tier III Hexavalent Chromium Tanks associated with the add-on air pollution control device or add-on non-ventilated air pollution control device if an acceptable smoke test for each add-on air pollution control device pursuant to Appendix 5 and each add-on non-ventilated air pollution control device pursuant to Appendix 8 is not conducted. The Tier II and Tier III Hexavalent Chromium Tank shall remain shut down until an acceptable smoke test is conducted.

(G) HEPA Filters

Beginning 60 days after completion of the initial source test required by subdivision (k), the owner or operator of a facility with an add-on air pollution control device equipped with HEPA filters shall ensure that the device to monitor pressure drop pursuant to subparagraph (m)(1)(A):

- (i) Is equipped with ports to allow for periodic calibration in accordance with manufacturer specifications;
    - (ii) Is calibrated according to manufacturer specifications at least once every calendar year; and
    - (iii) Is maintained in accordance with manufacturer specifications.
- (m) (2) Wetting Agent Chemical Fume Suppressants (Excluding Decorative Chromium Electroplating Tanks Using a Trivalent Chromium Bath)
  - (A) The owner or operator of a facility shall monitor the surface tension of the chromium electroplating or chromic acid anodizing tank that contains a certified wetting agent chemical fume suppressant with either a stalagmometer or tensiometer using the applicable method pursuant to subparagraph (k)(2)(C). The surface tension shall be maintained below the respective value established in the list of certified wetting agent chemical fume suppressants pursuant to subdivision (l), or at or below a value specified in the SCAQMD Permit to Operate.
  - (B) The owner or operator of a facility shall measure the surface tension every third operating day but not less than once per week.
  - (C) If at any time the surface tension required by subparagraph (m)(2)(A) is not maintained, the owner or operator of a facility shall measure the surface tension:
    - (i) Daily for 20 consecutive operating days; and
    - (ii) Resume the measurement schedule pursuant to subparagraph (m)(2)(B).
  - (D) The owner or operator of a facility operating under an approved alternative compliance method pursuant to subdivision (i), and using chemical fume suppressants as all or partial control of hexavalent chromium emissions shall measure and monitor the surface tension of the electroplating or anodizing bath each operating day . The surface tension shall be maintained at or below the surface tension measured during the source test.
- (m) (3) Fume Suppressants Forming a Foam Blanket
  - (A) The owner or operator of a facility shall maintain the foam blanket thickness across the surface of the chromium electroplating or

chromic acid anodizing tank established during the most recently approved source test to demonstrate compliance with the emission limit specified in paragraphs (h)(2) or (h)(4).

- (B) The owner or operator of a facility shall measure the foam blanket thickness each operating day.
- (C) If at any time the foam blanket thickness required by subparagraph (m)(3)(A) is not maintained, the owner or operator of a facility shall measure the foam blanket thickness:
  - (i) Hourly for 15 consecutive operating days; and
  - (ii) Resume the measurement schedule pursuant to subparagraph (m)(3)(B).
- (m) (4) Polyballs or Similar Mechanical Fume Suppressants  
The owner or operator of a facility shall visually inspect the Tier II or Tier III Hexavalent Chromium Tank and maintain coverage comparable to the coverage during the source test each operating day.
- (n) Inspection, Operation, and Maintenance Requirements
  - (n) (1) Inspection and Maintenance
    - (A) The owner or operator of a facility using an add-on air pollution control device or add-on non-ventilated air pollution control device shall comply with the applicable inspection and maintenance requirements listed in Table 4-1 of Appendix 4.
    - (B) The owner or operator of a facility using an add-on air pollution control device or add-on non-ventilated air pollution control device custom designed for a specific operation shall develop operating and maintenance requirements for approval by the Executive Officer. The requirements and frequency of inspection shall be sufficient to ensure compliance.
  - (n) (2) The owner or operator of a facility using chemical fume suppressants or mechanical fume suppressants shall comply with the applicable inspection and maintenance requirements in Table 4-4 of Appendix 4.
  - (n) (3) Beginning January 31, 2019, the owner or operator of a facility operating a Tier II Hexavalent Chromium Tank that is not controlled by an add-on air pollution control device shall comply with the applicable inspection and maintenance requirements in Table 4-3 of Appendix 4.

- (n) (4) Beginning January 31, 2019, the owner or operator of a facility operating a Tier I, Tier II, and Tier III Hexavalent Chromium Tank shall comply with the applicable inspection and maintenance requirements in Table 4-2 of Appendix 4.
- (n) (5) **Operation and Maintenance Plan**

The owner or operator of a facility subject to the inspection and maintenance requirements of paragraphs (n)(1), (n)(2), (n)(3), or (n)(4) shall prepare an operation and maintenance plan. For major sources, the plan shall be incorporated by reference into the source's Title V permit. The plan shall incorporate the inspection and maintenance requirements for that device or monitoring equipment, as identified in Tables 4-1, 4-2, 4-3, and 4-4 of Appendix 4, and shall include the following elements:

  - (A) A standardized checklist to document the operation and maintenance of the source, the add-on air pollution control device, and the process and control system monitoring equipment; and
  - (B) Procedures to be followed to ensure that equipment is properly maintained.
- (n) (6) Notwithstanding the operation and maintenance plan required by paragraph (n)(5), the owner or operator of a facility may use applicable standard operating procedure (SOP) manuals, Occupational Safety and Health Administration (OSHA) plans, or other existing plans, provided the alternative plans meet the requirements of this subdivision.
- (n) (7) **Operation and Maintenance Plan Availability**

The owner or operator of a facility shall keep the written operation and maintenance plan on record after it is developed, to be made available for inspection, upon request.
- (n) (8) **Operation and Maintenance Plan Modifications**

Any changes made by the owner or operator of a facility shall be documented in an addendum to the plan. In addition, the owner or operator of a facility shall keep previous (i.e., superseded) versions of the operation and maintenance plan on record to be made available for inspection, upon request, for a period of 5 years after each revision to the plan.
- (n) (9) **Amended Operation and Maintenance Plan**

No later than January 31, 2019, the facility's operation and maintenance plan shall be revised and made available upon request to the Executive Officer to

reflect the incorporation of the inspection and maintenance requirements for a device or monitoring equipment that is identified in Table 4-2 and Table 4-3 of Appendix 4 and shall include the elements required in subparagraphs (n)(5)(A) and (n)(5)(B).

- (n) (10) Replacement of Ampere-Hour Meter  
Prior to replacement of a continuous recording non-resettable ampere-hour meter that is required under paragraph (d)(1), the owner or operator of a facility shall photograph the actual ampere-hour reading of:
  - (A) The ampere-hour meter being replaced; and
  - (B) The new ampere-hour meter immediately after installation.
  
- (o) Recordkeeping
  - (o) (1) Inspection Records for Sources Using an Add-on Air Pollution Control Device or Non-Ventilated Air Pollution Control Device  
The owner or operator of a facility shall maintain inspection records to document that the inspection and maintenance requirements of subdivision (n) , and that the provisions of the operation and maintenance plan required by subdivision (n) have been met. The record can take the form of a checklist and shall identify:
    - (A) The device inspected;
    - (B) The date and time of inspection;
    - (C) A brief description of the working condition of the device during the inspection;
    - (D) Maintenance activities performed on the components of the air pollution control system (i.e. duct work replacement, filter pad replacement, fan replacement, etc.); and
    - (E) Any actions taken to correct deficiencies found during the inspection.
  
  - (o) (2) Inspection Records for Sources Using Chemical or Mechanical Fume Suppressants  
The owner or operator of a facility shall maintain inspection records to document that the applicable inspection and maintenance requirements of paragraphs (n)(1), (n)(2), (n)(3), and (n)(4) have been met. The record can take the form of a checklist.

- (o) (3) Source Test, Capture Efficiency, and Smoke Test Records  
The owner or operator of a facility shall maintain the conditions and results of all source tests, capture efficiency tests, emissions screening test, and smoke tests required by subdivision (k). The records shall include source test results required to determine compliance with paragraph (m)(1), including the pressure drop established during the source test to demonstrate compliance with the applicable emission limitation.
- (o) (4) Monitoring Data Records  
The owner or operator of a facility shall maintain records of continuously recorded ampere-hour data required by paragraph (d)(1) and monitoring data required by subdivision (m).
  - (A) Cumulative Rectifier Usage Records  
The owner or operator of a facility shall, on a monthly basis, record the actual cumulative rectifier usage expended during each month of the reporting period, and the total usage expended to date.
  - (B) Pressure and Air Flow Measurements  
The owner or operator of a facility shall record the applicable pressures and air flow as specified in Table 5 — Add-on Air Pollution Control Device Parameter Monitoring of subdivision (m) once a week.
- (o) (5) Surface Tension Records
  - (A) The owner or operator of a facility shall record the surface tension pursuant to the requirements of paragraph (m)(2).
  - (B) For facilities operating under an approved alternative compliance method pursuant to subdivision (i), and using chemical fume suppressants as all or partial control of hexavalent chromium emissions, the owner or operator of the facility shall record the surface tension of the electroplating or anodizing bath daily.
- (o) (6) Mechanical Fume Suppressant and Foam Blankets Records
  - (A) The owner or operator of a facility that is required to measure the foam blanket thickness pursuant to paragraph (m)(3), shall record the foam thickness.
  - (B) The owner or operator of a facility using polyballs or other mechanical fume suppressants to comply with the emission standards of subdivision (h) or (i), shall record the coverage of the

electroplating or anodizing bath daily. Coverage shall be reported as a percentage of bath surface area.

(o) (7) Records of Excesses

The owner or operator of a facility shall maintain records of exceedances of: the emission limitations in subdivisions (h) and (i), the parameter monitoring values established under subdivision (m), or any site-specific operating parameters established for alternative equipment. The records shall include the date of the occurrence, the duration, cause (if known), and, where possible, the magnitude of any excess emissions.

(o) (8) Housekeeping and Best Management Practice Records

The owner or operator of a facility shall maintain records demonstrating compliance with housekeeping practices and best management practices, as required by subdivisions (f) and (g), including the dates on which specific activities were completed, and records showing that chromium or chromium-containing wastes have been stored, disposed of, recovered, or recycled using practices that do not lead to fugitive emissions.

(o) (9) Records of Fume Suppressant Additions

For sources using fume suppressants to comply with the standards, the owner or operator of a facility shall maintain records of the date, time, approximate volume, and product identification of the fume suppressants that are added to the electroplating or anodizing bath.

(o) (10) Records of Trivalent Bath Components

For sources complying with paragraph (h)(3) using trivalent chromium baths, the owner or operator of a facility shall maintain records of the bath components purchased, with the wetting agent clearly identified as a bath constituent contained in one of the components.

(o) (11) Records of Filter Purchase and Disposal

For sources using add-on air pollution control devices to comply with the standards, the owner or operator of a facility shall retain purchase orders for filters and waste manifest records for filter disposal.

(o) (12) Records Retention

All records shall be maintained for five years, at least two years on site.

(p) Reporting

(p) (1) Source Test Documentation

- (A) Notification of Source Test  
At least 60 calendar days before the source test is scheduled to occur, the owner or operator of a facility shall notify the Executive Officer that a source test will be conducted.
  - (B) Reports of Source Test Results  
The owner or operator of a facility shall report source test results to the Executive Officer. Reports of source test results shall be submitted no later than 90 calendar days following the completion of the required source test, and shall be submitted as part of the notification of compliance status required by paragraphs (p)(2) and (p)(3).
  - (C) The source test reports shall contain, at a minimum, the information identified in Appendix 1.
- (p) (2) Initial Compliance Status Report  
An initial compliance status report is required each time that a source becomes subject to the requirements of this rule. The owner or operator of a facility shall submit to the Executive Officer an initial compliance status report, signed by the responsible official who shall certify its accuracy, attesting to whether the source has complied with this rule.
- (A) Initial Compliance Status Report Due Date  
The initial compliance status report for existing facilities shall be submitted to the Executive Officer no later than April 24, 2008. New or modified facilities shall submit the initial compliance status report upon start-up.
  - (B) The initial compliance status report shall contain, at a minimum, the information identified in Appendix 2.
- (p) (3) Ongoing Compliance Status and Emission Reports  
The owner or operator of a facility shall submit a summary report to the Executive Officer to document the ongoing compliance status.
- (A) Frequency of Ongoing Compliance Status and Emission Reports  
The report shall be submitted each calendar year on or before February 1 for all sources and shall include information covering the preceding calendar year (January 1 through December 31).
  - (B) The ongoing compliance status and emission reports shall, at a minimum, contain the information identified in Appendix 3.



- (p) (4) Notification of Incident
- (A) The owner or operator of a facility shall notify the Executive Officer within four hours of the incident or within four hours from the time the owner or operator of a facility knew or reasonably should have known of, any failed smoke test, any failed source test, any exceedance of a permitted ampere-hour limit, or any malfunction of a non-resettable ampere-hour meter by calling 1-800-CUT SMOG. In the cases of emergencies that prevent the owner or operator of a facility from reporting all required information within the four hour limit, the Executive Officer may extend the time for reporting the required information provided such owner or operator of a facility has notified the Executive Officer of the incident within 24-hours. The notification shall include the following information:
- (i) Date and time of the incident and when it was discovered;
  - (ii) Specific location and equipment involved;
  - (iii) Responsible party to contact for further information;
  - (iv) Causes of the incident, to the extent known; and
  - (v) Estimated time for repairs and correction.
- (B) Within seven calendar days after a reported incident has been corrected, but no later than thirty calendar days from the initial date of the incident, unless an extension has been approved in writing by the Executive Officer, the owner or operator of a facility shall submit a written incident report to the Executive Officer that includes:
- (i) An identification of the equipment involved in causing, or suspected of having caused, or having been affected by the incident;
  - (ii) The duration of the incident;
  - (iii) The date of correction and information demonstrating that compliance is achieved;
  - (iv) An identification of the types of emissions, if any, resulting from the incident;
  - (v) A quantification of the excess emissions, if any, resulting from the incident and the basis used to quantify the emissions;

- (vi) Information substantiating that steps were immediately taken to correct the condition causing the incident, and to minimize the emissions, if any, resulting from the incident;
  - (vii) Written verification that the facility is operating in compliance with this rule. If the facility is not in compliance with this rule, provide an approximate date the facility is expected to be in compliance;
  - (viii) A description of the corrective measures undertaken and/or to be undertaken to avoid such an incident in the future; and
  - (ix) Pictures of the equipment that failed, if available.
- (p) (5) Reports Associated with Trivalent Chromium Baths Exclusively Using a Chemical Fume Suppressant Containing a Wetting Agent  
Owners or operators switching to trivalent chromium baths exclusively using a chemical fume suppressant containing a wetting agent to comply with subparagraph (h)(3)(A) are not subject to paragraphs (p)(1) through (p)(3), but shall instead submit a report within 30 days of a change to the trivalent chromium electroplating process that includes:
  - (A) A description of the manner in which the process has been changed and the emission limitation, if any, now applicable to the source; and
  - (B) The notification and reporting requirements of paragraphs (p)(1), (p)(2), and (p)(3), if the facility complies with the emission limitation option, or paragraph (p)(5), if the source uses a wetting agent to comply. The report shall be submitted in accordance with the schedules identified in those paragraphs.
- (p) (6) Adjustments to the Timeline for Submittal and Format of Reports  
The Executive Officer may adjust the timeline for submittal of periodic reports, allow consolidation of multiple reports into a single report, establish a common schedule for submittal of reports, or accept reports prepared to comply with other state or local requirements. Adjustments shall provide the same information and shall not alter the overall frequency of reporting.
- (q) Procedure for Establishing Alternative Requirements
- (q) (1) Request Approval of an Alternative Requirement  
Any person may request approval of an alternative requirement. The person seeking such approval shall submit the proposed alternative requirement to

- the Executive Officer for approval. The request shall include the proposed alternative requirement, the reason for requesting the alternative requirement, and information demonstrating that the criteria for approval identified in Appendix 6 is met.
- (q) (2) Approval of an Alternative Requirement  
The Executive Officer may approve an alternative requirement if it determines that application of the alternative requirement meets the criteria for approval identified in Appendix 6 and the Executive Officer has submitted the proposed alternative requirements and has received concurrence from the applicable concurring agencies identified in Appendix 6.
- (q) (3) Approval Criteria  
Nothing in this subdivision prohibits the Executive Officer from establishing approval criteria more stringent than that required in Appendix 6.
- (q) (4) Alternatives Already Approved by U.S. EPA  
Waivers for alternatives already approved by the U.S. EPA prior to October 24, 2007 shall remain in effect until the effective dates of the specified requirements become effective.
- (r) Exemptions
- (r) (1) The requirements of subdivisions (m) and (n) do not apply to decorative chromium electroplating tanks using a trivalent chromium bath with a wetting agent.
- (r) (2) The requirements of paragraphs (f)(6), (g)(4), and (g)(5) do not apply to buffing, grinding, or polishing operations conducted under a continuous flood of metal removal fluid.
- (s) Rule 1402 Inventory Requirements  
The owner or operator of a facility that is in compliance with this rule will not be required to submit an emission inventory to the Executive Officer for emissions of toxic compounds subject to this rule, pursuant to paragraph (p)(1) of Rule 1402 - Control of Toxic Air Contaminants from Existing Sources.
- (t) Conditional Requirements for Permanent Total Enclosure

- (t) (1) The owner or operator of a facility shall install a Permanent Total Enclosure that does not exceed 3.5% for all enclosure openings, as specified in paragraph (e)(1) for a Tier III hexavalent chromium tank:
  - (A) That results in more than one non-passing source test as required in paragraph (k)(1) occurring within a consecutive 48-month period; or
  - (B) That is not immediately shut down pursuant to clause (m)(1)(C)(iii), subparagraph (m)(1)(D) or subparagraph (m)(1)(F):
    - (i) More than once within a consecutive 48-month period for a facility that is located more than 1,000 feet from a sensitive receptor; or
    - (ii) Once for a facility that is located less than or equal to 1,000 feet from a sensitive receptor.
- (t) (2) Within 30 days of the date of notification by the Executive Officer that a Permanent Total Enclosure is required, the owner or operator of facility may submit a written report to the Executive Officer providing evidence that the installation of a Permanent Total Enclosure is not warranted based on the following criteria:
  - (A) The incidents of non-compliance specified in paragraph (t)(1) did not occur; or
  - (B) The owner or operator of a facility resolved the incidents of non-compliance specified in paragraph (t)(1) in a timely manner; and
  - (C) The owner or operator of a facility implemented specific measures to minimize hexavalent chromium emissions.
- (t) (3) The Executive Officer shall use the information provided by the owner or operator of a facility to determine if a permanent total enclosure is required and will notify the owner or operator of a facility within 90 days of receiving the written report.
- (t) (4) The owner or operator of a facility required to install a permanent total enclosure pursuant to subdivision (t) shall vent the permanent total enclosure to an add-on air pollution control device that is fitted with HEPA filters, or other filter media that is rated by the manufacturer to be equally or more effective; and designed in a manner that does not conflict with requirements or guidelines set forth by OSHA or CAL-OSHA regarding worker safety, or the National Fire Protection Association regarding safety.

- (t) (5) The owner or operator of a facility required to install a permanent total enclosure pursuant to subdivision (t) shall install the permanent total enclosure no later than 12 months after the SCAQMD Permit to Construct is issued by the Executive Officer. The owner or operator of a facility shall submit complete SCAQMD permit applications for the permanent total enclosure to the Executive Officer no later than:
  - (A) 180 days after notification by the Executive Officer if the property line of the facility is within 500 feet of the property line of any sensitive receptor.
  - (B) 270 days after notification by the Executive Officer for all other facilities.
  
- (u) Hexavalent Chromium Phase-Out Plan
- (u) (1) The owner or operator of a facility shall not be subject to the requirements of paragraph (h)(4) to vent a Tier III Hexavalent Chromium Tank, existing on or before November 2, 2018, to an add-on air pollution control device, if the owner or operator of a facility submits a Hexavalent Chromium Phase-Out Plan to the Executive Officer for review and approval no later than January 31, 2019 containing the following:
  - (A) A commitment that the facility will permanently eliminate or reduce hexavalent chromium concentrations within the subject tank to below the concentration of the definition of a Tier II or Tier III Hexavalent Chromium Tank;
  - (B) A description of the method by which hexavalent chromium concentrations will be permanently eliminated or reduced from the subject tank(s) and the date of final completion, not to exceed two years from approval of the Hexavalent Chromium Phase-Out Plan;
  - (C) A list of milestones, including any testing required to meet specifications or quality assurance requirements, to allow the facility to reduce or eliminate hexavalent chromium by the completion date;
  - (D) Completion date for each of the milestones listed in subparagraph (u)(1)(C); and
  - (E) A list of all control measures that will be implemented for the subject tank(s), including dates of implementation, until the hexavalent chromium-concentration is eliminated or reduced as stated.

- (u) (2) The Hexavalent Chromium Phase-Out Plan shall be subject to the fees specified in Rule 306.
- (u) (3) The Executive Officer shall notify the owner or operator of a facility in writing whether the Hexavalent Chromium Phase-Out Plan is approved or disapproved. Determination of approval status shall be based on, at a minimum, submittal of information that satisfies the criteria set forth in paragraph (u)(1). If the Hexavalent Chromium Phase-Out Plan is disapproved, the owner or operator of a facility shall resubmit the plan, subject to plan fees specified in Rule 306, within 30 calendar days after notification of disapproval of the Hexavalent Chromium Phase-Out Plan. The resubmitted Hexavalent Chromium Phase-Out Plan shall include any information necessary to address deficiencies identified in the disapproval letter.
- (u) (4) Upon approval of the Hexavalent Chromium Phase-Out Plan, the owner or operator of a facility shall implement the approved plan and shall submit a progress report to the Executive Officer by the first day of every calendar quarter indicating the increments of progress for the previous quarter, or submit according to an alternative schedule as specified in the approved plan.
- (u) (5) The Executive Officer shall notify the owner or operator of a facility to submit complete SCAQMD permit applications for an add-on air pollution control device to comply with subdivision (h) if:
  - (A) The owner or operator does not eliminate or reduce hexavalent chromium by the final completion date in the approved Hexavalent Chromium Phase-Out Plan;
  - (B) The Executive Officer denies a resubmitted Hexavalent Chromium Phase-Out Plan; or
  - (C) The owner or operator fails to resubmit a Hexavalent Chromium Phase-Out Plan as required under paragraph (u)(3).
- (u) (6) The owner or operator shall install the add-on air pollution control device specified in the permit application submitted pursuant to paragraph (u)(5) no later than 180 days after a SCAQMD Permit to Construct has been issued.
- (v) Time Extensions
- (v) (1) An owner or operator of a facility may submit a request to the Executive Officer for a one-time extension for up to 12 months to:

- (A) Complete installation of an add-on air pollution control device, implement an approved alternative compliance method, or implement an approved Hexavalent Chromium Phase-Out Plan to meet the requirements under subparagraph (h)(4)(C); or
  - (B) Meet the hexavalent chromium emission limit, phase-out the use of hexavalent chromium, or implement an alternative to a wetting agent chemical fume suppressant required under paragraph (l)(5);
- (v) (2) An owner or operator of a facility that elects to submit a request for a time extension shall submit the request no later than 90 days before the compliance deadline specified in subparagraph (h)(4)(C) or paragraph (l)(5) and provide:
- (A) The facility name, SCAQMD facility identification number, and the name and phone number of a contact person;
  - (B) A description of the chromium electroplating or chromic acid anodizing tank and the SCAQMD Permit to Operate and tank number;
  - (C) A description of the emission reduction approach that is being implemented;
  - (D) The specific provision under subparagraph (h)(4)(C) or paragraph (l)(5) for which a compliance extension is being requested;
  - (E) The reason(s) a time extension is needed;
  - (F) Progress in meeting the provisions in subparagraph (h)(4)(C) or paragraph (l)(5) including but not limited to date permit application was submitted to the SCAQMD, date permit to construct was approved, purchase order of equipment, date of service of contractors or consultants to install equipment; and
  - (G) Length of time requested, up to 12 months.
- (v) (3) Approval of Time Extensions
- The Executive Officer will review the request for the time extension and will approve the time extension if the owner or operator:
- (A) Demonstrates that there are specific circumstances beyond the control of the owner or operator that necessitate additional time to meet the compliance dates specified under subparagraph (h)(4)(C) and paragraph (l)(5); and

- (B) The demonstration is substantiated with information that includes, but is not limited to detailed schedules, engineering designs, construction plans, permit applications, purchase orders, economic burden, and technical infeasibility.



**Appendix 1 – Content of Source Test Reports.**

Source test reports shall contain, at a minimum, the following information:

1. A brief process description;
2. Sampling location description(s);
3. A description of sampling and analytical procedures and any modifications to standard procedures;
4. Test results in milligrams/ampere-hour;
5. Quality assurance procedures and results;
6. Records of operating conditions during the test, preparation of standards, and calibration procedures;
7. Original data for field sampling and field and laboratory analyses;
8. Documentation of calculations;
9. Applicable Industrial Ventilation Limits;
10. Collection slot velocities (if applicable);
11. Measured static, differential, or volumetric flow rate at the push manifold, collection manifold, across each stage of the control device, and exhaust stack (if applicable); and
12. Any other information required by the test method.

## Appendix 2 – Content of Initial Compliance Status Reports.

Initial compliance status reports shall contain, at a minimum, the following information:

1. Facility name, SCAQMD ID number, facility address, owner and operator name, and telephone number;
2. The distance of the facility to the property line of the nearest commercial/industrial building and sensitive receptor using measurement methods provided in paragraph (h)(2);
3. Sensitive receptor locations, if they are located within one-quarter of a mile from the center of the facility;
4. Building parameters
  - Stack height in feet (point sources); or
  - Building area in square feet (volume sources).
5. Maximum potential rectifier capacity per tank and facility maximum operating schedule (more than or less than or equal to 12 hours per day);
6. The applicable emission limitation and the methods that were used to determine compliance with this limitation;
7. Facility-wide emissions, if applicable;
8. If a source test is required, the test report documenting the results of the source test, which contains the elements listed in Appendix 1;
9. If an initial smoke test demonstrating the capture efficiency of the add-on air pollution control device or add-on non-ventilated air pollution control device is required, the test report documenting the results which contain the elements listed in Appendix 8;
10. The type and quantity, in pounds, of hazardous air pollutants emitted by the source.;
11. For each monitored parameter for which a compliant value is to be established under subdivision (m), the specific operating parameter value, or range of values, that corresponds to compliance with the applicable emission limit;
12. The methods that will be used to determine continuous compliance, including a description of monitoring and reporting requirements, if methods differ from those identified in this section;
13. A description of the air pollution control technique for each emission point;

14. A statement that the owner or operator of a facility has completed and has on file the operation and maintenance plan as required by subdivision (n);
15. The actual cumulative ampere-hour usage expended during the preceding calendar year, if operation occurred;
16. Information on calculations for the building enclosure envelope pursuant to paragraph (e)(1), including locations and dimensions of openings that are counted towards the applicable building envelope allowance;
17. A statement that the owner or operator of a facility, or personnel designated by the owner or operator of a facility, has completed a SCAQMD-approved training program pursuant to subdivision (j); and
18. A statement by the owner or operator of a facility as to whether the source has complied with the provisions of this section.

**Appendix 3 – Content of Ongoing Compliance Status and Emission Reports.**

Ongoing compliance status and emission reports shall, at a minimum, contain the following information:

1. The company name and address of the source;
2. An identification of the operating parameter that is monitored for compliance determination, as required by subdivision (m);
3. The relevant emission limitation for the source, and the operating parameter value, or range of values, that correspond to compliance with this emission limitation as specified in the notification of initial compliance status required by Appendix 2;
4. The beginning and ending dates of the calendar year for the reporting period;
5. A description of the type of process performed in the source;
6. The actual cumulative rectifier usage expended during the calendar year of the reporting period, on a month-by-month basis, if the source is a hard or decorative chromium electroplating tank or chromic acid anodizing tank;
7. Updated facility-wide emissions, if applicable;
8. Hexavalent chromium and trivalent chromium emissions data in grams per year for the reporting period;
9. Sensitive receptor distances, if they are located within  $\frac{1}{4}$  of mile from the center of the facility and facility maximum operating schedule (more than or less than or equal to 12 hours per day), if changed since submittal of the initial compliance status report or subsequent ongoing compliance status and emission reports. Sensitive receptor distances shall be measured using methods provided in paragraph (h)(2);
10. A summary of any excess emissions or exceeded monitoring parameters as identified in the records required by paragraph (o)(7);
11. A certification by a responsible official that the inspection and maintenance requirements in subdivision (n) were followed in accordance with the operation and maintenance plan for the source;
12. If the operation and maintenance plan required by subdivision (n) was not followed, an explanation of the reasons for not following the provisions, an assessment of whether any excess emissions and/or monitoring parameter excesses are believed to have occurred, and a copy of the record(s) required by paragraph (o)(1) documenting that the operation and maintenance plan was not followed;

13. If applicable, results of periodic smoke tests demonstrating capture efficiency of an add-on air pollution control device or add-on non-ventilated air pollution control device conducted during the reporting period;
14. A description of any changes in monitoring, processes, or controls since the last reporting period;
15. A statement that the owner or operator of a facility, or personnel designated by the owner or operator of a facility has, within the last 2 years, completed a SCAQMD-approved training program pursuant to subdivision (j);
16. Add-on air pollution ventilation measurements conducted during the most recent successful SCAQMD approved source test that include:
  - (A) The velocity of each collection slot, including the velocity values that would be 95% and 90% of the source-tested value.
  - (B) For push-pull systems, the pressure of each push air manifold, including the pressure values that would be 110%, 105%, 95%, and 90% of the source-tested value;
17. A summary of any pollution prevention measures that the facility has implemented that eliminates or reduces the use of hexavalent chromium in the chromium electroplating or chromic acid anodizing process and associated process tanks.
18. Information on calculations for the building enclosure envelope pursuant to paragraph (e)(1), including locations and dimensions of openings that are counted towards the applicable building envelope allowance.
19. The name, title, and signature of the responsible official who is certifying the accuracy of the report; and
20. The date of the report.

## Appendix 4 – Summary of Inspection and Maintenance Requirements

**Table 4-1:  
Summary of Inspection and Maintenance Requirements for Sources Using Add-on  
Air Pollution Control Device(s) or Add-On Non-Ventilated Air Pollution Control  
Device(s)**

<b>Control Technique/Equipment</b>	<b>Inspection and Maintenance Requirements</b>	<b>Frequency</b>
Composite mesh-pad (CMP) system.	1. Visually inspect device to ensure that there is proper drainage, no unusual chromic acid buildup on the pads, and no evidence of chemical attack that affects the structural integrity of the device.	1. Once per quarter.
	2. Visually inspect back portion of the mesh pad closest to the fan to ensure there is no breakthrough of chromic acid mist.	2. Once per quarter.
	3. Visually inspect ductwork from tank to the control device to ensure there are no leaks.	3. Once per quarter.
	4. Perform washdown of the composite mesh-pads in accordance with manufacturer's recommendations.	4. Per manufacturer.
Packed-bed scrubber (PBS)	1. Visually inspect device to ensure there is proper drainage, no unusual chromic acid buildup on the packed-beds, and no evidence of chemical attack that affects the structural integrity of the device.	1. Once per quarter.
	2. Visually inspect back portion of the chevron blade mist eliminator to ensure that it is dry and there is no breakthrough of chromic acid mist.	2. Once per quarter.
	3. Same as number 3 above for CMP system.	3. Once per quarter.
	4. Add fresh makeup water to the packed-bed <sup>A</sup> .	4. Whenever makeup is added.

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<sup>A</sup> Horizontal packed-bed scrubbers without continuous recirculation must add make-up water to the top of the packed-bed.

**Table 4-1:  
Summary of Inspection and Maintenance Requirements for Sources Using Add-on  
Air Pollution Control Device(s) or Add-On Non-Ventilated Air Pollution Control  
Device(s) (cont)**

Control Technique/Equipment	Inspection and Maintenance Requirements	Frequency
PBS/CMP system	<ol style="list-style-type: none"> <li>1. Same as for CMP system.</li> <li>2. Same as for CMP system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Once per quarter.</li> <li>2. Once per quarter.</li> </ol>
	<ol style="list-style-type: none"> <li>3. Same as for CMP system.</li> <li>4. Same as for CMP system</li> </ol>	<ol style="list-style-type: none"> <li>3. Once per quarter.</li> <li>4. Per manufacturer.</li> </ol>
Fiber-bed mist eliminator <sup>B</sup>	<ol style="list-style-type: none"> <li>1. Visually inspect fiber-bed unit and prefiltering device to ensure there is proper drainage, no unusual chromic acid buildup in the units, and no evidence of chemical attack that affects the structural integrity of the devices.</li> <li>2. Visually inspect ductwork from tank or tanks to the control device to ensure there are no leaks.</li> <li>3. Perform washdown of fiber elements in accordance with manufacturer's recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Once per quarter.</li> <li>2. Once per quarter.</li> <li>3. Per manufacturer.</li> </ol>
High Efficiency Particulate Arrestors filter (HEPA)	<ol style="list-style-type: none"> <li>1. Look for changes in the pressure drop.</li> <li>2. Replace HEPA filter.</li> </ol>	<ol style="list-style-type: none"> <li>1. Once per week.</li> <li>2. Per manufacturer's specifications or SCAQMD's requirement.</li> </ol>

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<sup>B</sup> Inspection and maintenance requirements for the control device installed upstream of the fiber-bed mist eliminator to prevent plugging do not apply as long as the inspection and maintenance requirements for the fiber-bed unit are followed.

**Table 4-1:  
Summary of Inspection and Maintenance Requirements for Sources Using Add-on  
Air Pollution Control Device(s) or Add-On Non-Ventilated Air Pollution Control  
Device(s) (cont)**

Control Technique/Equipment	Inspection and Maintenance Requirements	Frequency
Chromium Tank Covers	<ol style="list-style-type: none"> <li>1. Drain the air-inlet (purge air) valves at the end of each day that the tank is in operation.</li> <li>2. Visually inspect access door seals and membranes for integrity.</li> <li>3. Drain the evacuation unit directly into the electroplating tank or into the rinse tanks (for recycle into the electroplating tank).</li> <li>4. Visually inspect membranes for perforations using a light source that adequately illuminates the membrane (e.g., Grainger model No. 6X971 Fluorescent Hand Lamp).</li> <li>5. Visually inspect all clamps for proper operation; replace as needed.</li> <li>6. Clean or replace filters on evacuation unit.</li> <li>7. Visually inspect piping to, piping from, and body of evacuation unit to ensure there are no leaks and no evidence of chemical attack.</li> <li>8. Replace access door seals, membrane evacuation unit filter, and purge air inlet check valves in accordance with the manufacturer's recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Once per day.</li> <li>2. Once per week.</li> <li>3. Once per week.</li> <li>4. Once per month.</li> <li>5. Once per month.</li> <li>6. Once per month.</li> <li>7. Once per quarter.</li> <li>8. Per manufacturer.</li> </ol>
Pitot tube	Backflush with water, or remove from the duct and rinse with fresh water. Replace in the duct and rotate 180 degrees to ensure that the same zero reading is obtained. Check Pitot tube ends for damage. Replace Pitot tube if cracked or fatigued.	Once per quarter.
Ampere-hour meter	Install and maintain per manufacturer's specifications.	Per manufacturer.



**Table 4-2:  
Additional Inspection and Maintenance Requirements for Tier I, II, and III  
Hexavalent Chromium Tank(s)**

<b>Control Technique/Equipment</b>	<b>Inspection and Maintenance Requirements</b>	<b>Frequency</b>
Temperature Gauge	1. Install and maintain per manufacturer's specification at each Tier I, II, and III Hexavalent Chromium Tank.	1. Per manufacturer.
	2. Calibrated or confirmed to be accurate.	2. Once per year.
Collection Slots and Push Air Manifolds for Push-Pull Systems	1. Visually inspect slots and push air manifolds to ensure that there are no obstructions or clogs.	1. Once per week.
	2. Clean slots or push air manifolds.	2. Once every 180 days.
	3. Measure slot velocity of each slot and pressure at each push air manifold using a hot-wire anemometer, vein anemometer, or approved device	3. Once every 180 days.
Air Flow Gauges	Install and maintain per manufacturer's specifications.	Per manufacturer

**Table 4-3**  
**Summary of Inspection and Maintenance Requirements for Sources Not Using Add-on Air Pollution Control Devices to Control Tier II Hexavalent Chromium Tank(s)**

<b>Equipment</b>	<b>Inspection and Maintenance Requirement for Monitoring Equipment</b>	<b>Frequency</b>
Temperature Data Logger	1. Install and maintain per manufacturer's specification at each Tier II Hexavalent Chromium Tank.	1. Per manufacturer.
	2. Calibrate or confirm to be accurate.	2. Per manufacturer.

**Table 4-4**  
**Summary of Inspection and Maintenance Requirements for Sources Using Chemical or Mechanical Fume Suppressants**

<b>Equipment</b>	<b>Inspection and Maintenance Requirement for Monitoring Equipment</b>	<b>Frequency</b>
Ampere-hour meter	Install and maintain per manufacturer's specifications.	Per manufacturer.
Stalagmometer/ Tensiometer	Calibrate and maintain per manufacturer's specifications.	Per manufacturer.

## Appendix 5 – Smoke Test for Add-on Non-Ventilated Air Pollution Control Device

### SMOKE TEST TO VERIFY THE SEAL INTEGRITY OF COVERS DESIGNED TO REDUCE CHROMIUM EMISSIONS FROM TIER III HEXAVALENT CHROMIUM TANKS

1. Applicability and Principle
  - 1.1 Applicability. This method is applicable to all Tier III Hexavalent Chromium Tanks where a chromium tank cover or add-on non-ventilated air pollution control device is used on the tank for reducing chromium emissions.
  - 1.2 Principle. During electrolytic operations, gas bubbles generated during the process rise to the surface of the tank liquid and burst. Non-electrolytic tanks that are either heated or air sparged generate bubbles that rise to the surface. Upon bursting, tiny droplets of chromic acid (chromium mist) or hexavalent chromium laden liquid become entrained in the air above the tank. Because the chromium tank cover completely encloses the air above the tank, the chromium mist either falls back into the solution because of gravity or collects on the inside walls of the chromium tank cover and runs back into the solution. A semi-permeable membrane allows passage of the hydrogen and oxygen out of the chromium tank cover. A smoke device is placed inside the chromium tank cover to detect leaks at the membrane, joints, or seals.
2. Apparatus
  - 2.1 Smoke device. Adequate to generate 500 to 1000 ft<sup>3</sup> of smoke/20 ft<sup>2</sup> of tank surface area.
  - 2.2 Small container. To hold the smoke device.
3. Procedure

Place the small container on a stable and flat area at center of the chromium tank cover (you can use a board and place it on the buss bars). Place the smoke device inside the container. After activating the smoke device, quickly close the access door to avoid smoke from escaping. Let smoke device fill the entire space under the chromium tank cover with smoke. An acceptable smoke test shall demonstrate no leaks of smoke from each seal, joint, and membrane of the chromium tank cover. Record these observations including the locations and a qualitative assessment of any leaks of smoke.

When all seals, joints, and membranes have been observed, evacuate the unit to remove the smoke from the chromium tank cover.

### Appendix 6 – Approval of Alternatives for Specific Requirements

Section	Requirement	Description of Authority	Approving Agency	Concurring Agency
(b)	Applicability	Assisting an owner or operator of a facility in determining whether a facility is subject to the rule	SCAQMD	
(h)	Standards	Approving alternative standards	SCAQMD	U.S. EPA
(k)(1)	Source Test Requirement	Waiving a source test requirement	SCAQMD	
(k)(1)	Use of Existing Source Tests	Approving the use of existing performance test results to demonstrate compliance, based on the “Description of the Technical Review Protocol for Performance Tests of California Chrome Plating Sources” (see Attachment 2 of the July 10, 1998 memorandum from John S. Seitz entitled, “Delegation of 40 CFR Part 63 General Provisions Authorities to State and Local Air Pollution Control Agencies.”)	SCAQMD	
(k)(2)	Test Method	Approving site-specific alternatives to test methods	SCAQMD for minor <sup>1</sup> or intermediate <sup>2</sup> changes	U.S. EPA for major <sup>3</sup> changes, and ARB
(k)(4)	Pre-Test Protocol	Approving pre-test protocols	SCAQMD	
(k)(5)	Test All Emission Points	Waiving the requirement to test all emission points	SCAQMD	
(m)	Parameter Monitoring	Approving site-specific changes in monitoring methodology	SCAQMD for minor <sup>1</sup> or intermediate <sup>4</sup> changes	U.S. EPA for major <sup>3</sup> changes
(n)	Inspection and Maintenance Requirements	Approving site-specific changes to inspection and maintenance requirements	SCAQMD	
(n)	Operation and Maintenance Plans	Approving or requiring site-specific changes to operation and maintenance plans	SCAQMD	

Section	Requirement	Description of Authority	Approving Agency	Concurring Agency
(o)(1)- (o)(11)	Recordkeeping	Waiving or altering recordkeeping requirements	SCAQMD	U.S. EPA for major <sup>3</sup> changes
(o)(12)	Retention of Records	Waiving or altering the requirement to retain records for 5 years	SCAQMD	U.S. EPA for major <sup>3</sup> changes
(p)	Reporting	Waiving or altering reporting requirements	SCAQMD	U.S. EPA <sup>5</sup> for major <sup>3</sup> changes

- 1 Minor change to a test method or monitoring is a modification to a federally enforceable test method or monitoring that (a) does not decrease the stringency of the emission limitation or standard or the compliance and enforcement measures for the relevant standard; (b) has no national significance (e.g., does not affect implementation of the applicable regulation for other affected sources, does not set a national precedent, and individually does not result in a revision to the test method or monitoring requirement); and (c) is site specific, made to reflect or accommodate the operation characteristics, physical constraints, or safety concerns of an affected source.
- 2 Intermediate change to a test method is a within-method modification to a federally enforceable test method involving “proven technology” (generally accepted by the scientific community as equivalent or better) that is applied on a site-specific basis and that may have the potential to decrease the stringency of the associated emission limitation or standard. Intermediate changes are not approvable if they decrease the stringency of the standard.
- 3 Major change to a test method or monitoring is a modification to a federally enforceable test method or federally required monitoring that uses unproven technology or procedures or is an entirely new method (sometimes necessary when the required test method is unsuitable).
- 4 Intermediate change to monitoring is a modification to federally required monitoring involving “proven technology” (generally accepted by the scientific community as equivalent or better) that is applied on a site-specific basis and that may have the potential to decrease the stringency of the compliance and enforcement measures for the relevant standard.
- 5 U.S. EPA concurrence is not needed for adjustments made according to paragraph (p)(6).

**Appendix 7 – Information Demonstrating an Alternative Method(s) of Compliance Pursuant to Subdivision (i)**

The owner or operator of a facility applying for approval of an alternative method of compliance must submit to the Executive Officer the following information.

1. A source test as specified in subdivision (i) that is submitted after receipt of the SCAQMD Permit to Construct. The test shall have been conducted in a manner consistent with normal electroplating or anodizing operations.
2. A demonstration that the alternative method achieves an equal or greater amount of reductions in hexavalent chromium emissions than would be achieved with direct compliance with the applicable emission rate in paragraphs (h)(2) or (h)(4).
3. Calculations based on scientifically valid risk assessment methodologies demonstrating that the alternative method results in reducing risk equally or greater than the risk reduction that would be achieved by direct compliance with the applicable emission rate. A facility using in-tank controls shall only be modeled as a volume source and the resulting risk shall be compared to the same facility modeled as a point source.
4. Documentation which demonstrates that the method is enforceable, including an operation and maintenance plan, an inspection and maintenance schedule, and a recordkeeping plan.
5. A demonstration that the facility is at least 75 feet from a sensitive receptor.

**Appendix 8 – Smoke Test to Demonstrate Capture Efficiency for an Add-on Air Pollution Control Device(s) Pursuant to Paragraph (k)(6).**

1. Applicability and Principle

1.1 Applicability. This method is applicable to all hard and decorative chromium electroplating and chromic acid anodizing operations where an add-on air pollution control device is used to reduce chromium emissions from the chromium electroplating or anodizing tank.

1.2 Principle. During chromium electroplating or anodizing operations, bubbles of hydrogen and oxygen gas generated during the process rise to the surface of the tank liquid and burst. Upon bursting, tiny droplets of chromic acid (chromium mist) become entrained in the air above the tank. Collection of this chromium mist is achieved with the add-on air pollution control device for the tank(s) where chromium emissions are reduced downstream. Emission control efficiency at the exhaust of an add-on control device is related to capture efficiency at the inlet of the add-on air pollution control device. For this reason, it is imperative that 100% capture efficiency is maintained. A smoke device placed within the area where collection of chromic mist by the add-on air pollution control device occurs reveals this capture efficiency.

2. Apparatus

2.1 Smoke Generator. Adequate to produce a persistent stream of visible smoke.

3. Testing Conditions

The smoke test shall be conducted while the add-on air pollution control device is in normal operation and under typical draft conditions representative of the facility's chromium electroplating and/or chromic acid anodizing operations. This includes cooling fans and openings affecting draft conditions around the tank area including, but not limited to, vents, windows, doorways, bay doors, and roll-ups. The smoke generator must be at full generation during the entire test and operated according to manufacturer's suggested use.

3. Procedure

The smoke test shall be conducted over a minimum twelve point matrix evenly distributed over the entire liquid surface of each chromium electroplating or chromic acid anodizing tank vented to the add-on air pollution control device. Place the aperture of the smoke device at each point of the matrix at a height within one inch above the tank top. Observe collection of the smoke to the collection location(s) of the add-on air pollution control device. An acceptable smoke test shall demonstrate

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a direct stream to the collection location(s) of the add-on air pollution control device without meanderings out of this direct path. Record these observations at each of the points on the matrix providing a qualitative assessment of the collection of smoke to the add-on air pollution control device. The test shall also be documented by photographs or video at each point of the matrix.



### Appendix 9 – Surface Tension Measurement Procedure for a Stalagmometer

The stalagmometer shall first be properly cleaned before being used for the first time and after a period of storage. Properly clean the stalagmometer using the following procedure:

1. Set up stalagmometer in stand in a fume hood.
2. Place a clean 150 mL beaker underneath the stalagmometer then fill with reagent grade concentrated nitric acid. Immerse bottom tip (approximately ½”) of stalagmometer into the beaker.
3. Squeeze rubber bulb and pinch at the arrow up (1) position to collapse. Place bulb end securely on top end of stalagmometer. Carefully draw the nitric acid by pinching the arrow up (1) position until the level is above the top etched line.
4. Allow nitric acid to remain in stalagmometer for 5 minutes and then carefully remove the bulb allowing the acid to completely drain.
5. Fill a clean 150 mL beaker with distilled or deionized water. Using the rubber bulb per the instructions in Step #3, rinse and drain stalagmometer with deionized or distilled water until the inside is “water break” free.
6. Fill a clean 150 mL beaker with isopropyl alcohol. Again using the rubber bulb per Step #3, rinse and drain stalagmometer twice with isopropyl alcohol and allow the stalagmometer to dry completely.
7. Take a sample of the solution to be tested and adjust the solution to room temperature. Measure the specific gravity and record reading.
8. Fill a clean 150 mL beaker with solution to be tested. Immerse bottom end of stalagmometer into the beaker. Fill the stalagmometer per instructions in Step #3, making sure that the solution level is above the top etched line.
9. Raise the stalagmometer so that the bottom end is completely out of solution. Remove bulb and immediately place a finger on the top end of the stalagmometer. Carefully use the finger to bring the solution level down to the top etched line. Do not release finger at this time.
10. “Wipe” the excess solution on the lower tip by touching it against the side of the beaker.
11. Release fingertip to allow solution to drain and count number of drops until the level reaches the bottom etched line.

**Calculations for Surface Tension**

$$\text{Surface tension (dynes/cm)} = \frac{S_w * N_w * D}{N * D_w}$$

$S_w$  = Surface tension of water at 25°C or 77°F (72.75 dynes/cm)

$N_w$  = water drop number etched on instrument

$D$  = measured specific gravity (g/ml)

$N$  = # of solution drops

$D_w$  = water density (1.0 g/mL)

**PRECAUTIONS:**

1. Make sure the stalagmometer is clean (no sludge or film)
2. No chips, cracks, etc
3. Vertical placement
4. No vibration
5. 20 drops per minute rate (10 dynes/cm) +/- 1 drop per minute
6. Performance checked with water. The number of drops etched on the instrument shall be verified with deionized water to +/- 1 drop. If the number of drops are not within 1 drop, then the stalagmometer shall be cleaned. If the cleaning process does not bring the drop count within 1 drop of the etched number on the instrument, then the operator shall:
  - a) Purchase a new stalagmometer; or
  - b) Use the number of drops recorded for the distilled water run as ( $N_w$ ) in the equation instead of the number of drops etched on the stalagmometer.
7. Sample at room temperature.

**Appendix 10 – Tier II and Tier III Hexavalent Chromium Tank Thresholds**

1. Tier II Tank hexavalent chromium concentrations shall remain in the concentration range for the specified temperature and be required to comply with paragraph (h)(5). Tanks that exceed the hexavalent chromium concentration for a corresponding temperature for Tier II Tanks shall be considered a Tier III Tank and shall be required to comply with subparagraph (h)(4)(A).

<b>Temperature (° F)</b>	<b>Tier II Tank Hexavalent Chromium Concentration (ppm)</b>	<b>Tier III Tank Hexavalent Chromium Concentration (ppm)</b>
140 to <145° F	5,200 to <10,400	≥10,400
145 to <150° F	2,700 to <5,500	≥5,500
150 to <155° F	1,400 to <2,900	≥2,900
155 to <160° F	700 to <1,600	≥1,600
160 to <165° F	400 to <800	≥800
165 to <170° F	180 to <400	≥400
≥170° F	≥100 to <200	≥200

2. Electrolytic tanks, such as chromium electroplating or chromic acid anodizing tanks, with hexavalent chromium concentration greater than 1,000 ppm shall be considered a Tier III tank regardless of operating temperature.
3. Air sparged tanks with a hexavalent chromium concentration greater than 1,000 ppm shall be considered a Tier III tank regardless of operating temperature.
4. The owner or operator of a facility shall not be subject to the requirement of subparagraph (h)(4)(A) to vent a Tier III Hexavalent Chromium Tank to an add-on air pollution control device for one tank at a facility if the tank meets the following requirements:
  - a) The surface area is less than or equal to four (4) square feet;
  - b) The hexavalent chromium concentration is less than or equal to 11,000 ppm;
  - c) The tank is operated and permitted at less than or equal to 210° F;
  - d) The tank is operated at a temperature between 170-210° F for less than or equal to two and one-half (2.5) hours per week; and
  - e) The tank complies with the tank cover requirements in paragraph (h)(5) and the temperature data logger requirements in paragraph (n)(3), and the data logger must log the duration of time and temperature of the tank to demonstrate compliance with (d) above.

A Tier III Tank that fails to comply with any of the conditions listed in a through e shall be subject to subparagraph (h)(4)(A).